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**FEBRUARY, 1954**

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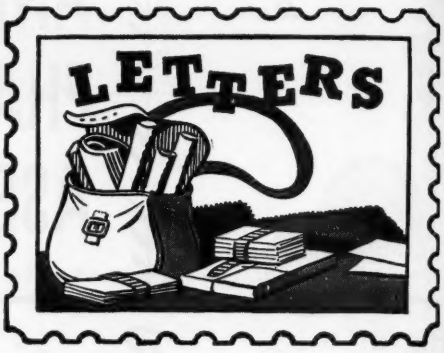


## From India

Sirs:

I have received the statement for the A.PH.A. dues and am enclosing herewith my check. I have very much enjoyed reading the JOURNAL and though we don't use much of the contents in our work here it is well worth while having. We are manufacturers of medicinal tablets which we distribute at about cost to mission hospitals all over India. This last year we made about 35,000,000 tablets which is quite a few for a small place like this. We have seven men working with us, none of whom have ever passed their high school training. However, they work hard and learn their jobs well.

Please let me know what amount has to be paid to become a life member of the A.PH.A.

The All India Missions — KENNIE M. LINN
Tablet Industry
Bangarapet, India

## Quid Pro Quo

Sirs:

The recent increase in dues came not as a surprise, but just something to be expected in the present time. However, like food prices, I believe that although the "price" is higher the value received will be less. Would'nt it be better to pay $75.00 a year in dues and get $75.00 of value, like the physicians do from their organization ...? Why does not the A.PH.A. do the following by exerting its powerful influence on national legislation that affects pharmacy—Pharmacists (graduates of accredited colleges) should upon entering the armed forces of the United States, automatically receive equal commissions, rank, and privileges that are given to members of the medical profession.

Require all operational executive personnel of pharmaceutical manufacturing firms to be graduate pharmacists.

Repeal of the Durham-Humphrey Bill as it works an economic hardship on the pharmacist and is a slur on his professional ability and integrity.

Philadelphia, Pa. — MALVIN S. AARONSON

LEGAL ACTIONS OF THE

# U. S. Food and Drug Administration

## COURT JUDGMENTS DECEMBER, 1953

### Over-The-Counter Sales of Prescription Drugs

Chicago, Ill. Sold amphetamines without physicians' prescriptions. Fined $600 and court costs of $37.60.

Charlestown, Mass.—Refilled prescriptions for amphetamines, barbiturates, and paraldehyde without physicians' authorizations. Fined $1,000, given a six-month suspended jail term, and placed on probation for two years.

Minneapolis, Minn.—Sold amphetamines and barbiturates without physicians' prescriptions. Fined $600 and placed on probation for three years.

Minneapolis, Minn.—Sold amphetamines, barbiturates, and sulfonamides without physicians' prescriptions. Fined $800 and placed on probation for two years.

St. Paul, Minn.—Sold amphetamines and barbiturates without physicians' prescriptions. Fined $500 and placed on probation for three years.

High Point, N. C.—Sold barbiturates and Ergoapiol without physicians' prescriptions. One defendant fined $500; judgment against other defendant was indefinitely suspended.

Philadelphia, Pa.—Sold sulfonamides without physicians' prescriptions. Fined $600.

Pulaski, Tenn.—Sold amphetamines, thyroid and Axotal without physicians' prescriptions Fined $4.

Salt Lake City, Utah—Sold and refilled prescriptions for amphetamines, barbiturates, and chloral hydrate without physicians' authorizations. Sentenced to two years in jail.

### Misbranded Drugs and Devices

Newark, N. J.—Mi-Vites tablets were deficient in niacinamide and vitamins A, $B_1$, and D; Vi-Mineroms tablets were deficient in iron sulfate and vitamins $B_1$ and D; and Panulos multiple vitamins were deficient in vitamin D, and contained less than the labeled minimum daily adult requirements of vitamin D. Two defendants, each fined $500.

Omaha, Neb.—Labeling of Ko-rekT tooth brushes contained false and misleading therapeutic claims that the device was adequate and effective for the prevention and treatment of bad breath, tartar formation, infected gums and their complications, tooth decay, pyorrhea, toothache, infected teeth, loss of teeth, and recession of the gums; that use of the device would assure healthy gums and mouth, good health, and increased longevity; and that the device would rebuild the teeth and jaw bone and would preserve youthful appearance. Given a 90-day suspended jail sentence and placed on probation for one year; court costs were assessed.

Newark, N. J.—Labeling of quinine sulfate tablets failed to bear adequate directions for use for the purpose for which they were intended, and Chlorbrom contained less than the labeled amounts of bromides, and the labeling did not state the presence of chloral hydrate and did not bear the required warning statement with respect to the presence of the chloral derivative. Two defendants, each fined $500.

### Federal Trade Commission Order

A Federal Trade Commission cease and desist order has been directed against I. Z. Harris and Pauline D. Harris, copartners trading as Veltex Company, 1811 First Avenue North, Birmingham, Ala.

The order forbids unqualified claims that V-T is of therapeutic value in the treatment of aches, pains, weakness, tiredness, loss of pep, nervousness, sleeplessness, nausea, headache and gas pains. Under the order, such claims must be accompanied by a conspicuous disclosure that the product is of value for these symptoms or conditions only when they are caused by deficiencies of Vitamins $B_1$, $B_2$, niacinamide, or iron.


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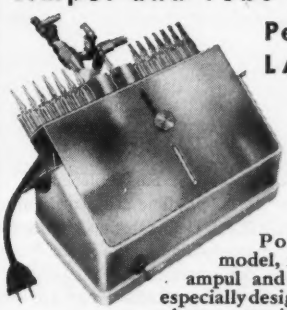

Portable table model, motor driven ampul and tube sealer, especially designed for pilot plant operation, research laboratories, hospital pharmacies and government institutions. All types of ampuls, ligature tubes and special heavy wall tubes uniformly sealed with equal facility. Production rate 500-1000 containers hourly.

*Write for Literature*

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# ℞ information service

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## Incompatible Prescriptions

*Please send me any information you may have about compounding procedures that will avoid the formation of precipitates in the following prescriptions:*

| | | |
|---|---|---|
| *No. 1:* | *Potassium iodide* | *2.5* |
| | *Theophylline* | *1.5* |
| | *Elixir Benadryl q. s.* | *60.0* |
| *No. 2:* | *Sodium phenobarbital* | *0.5* |
| | *Elixir Redisol q. s.* | *180.0* |

*—B. P., Hutchinson, Kan.*

Prescription No. 1.—A physical incompatibility results from exceeding the solubility of theophylline—1 Gm. being soluble in 120 cc. of water and in 80 cc. of alcohol. The following procedures might be used:

(*a*) Mix the potassium iodide and theophylline with starch or lactose or some other filler and pack in capsules. The Elixir Benadryl would be dispensed separately.

(*b*) The theophylline, triturated to a fine powder, could be suspended in the solution of potassium iodide in the Elixir Benadryl, with the aid of a suspending agent. Tragacanth 0.4 Gm. is suitable. Affix a "shake" label for this product.

(*c*) If the physician will permit replacement of the theophylline with theophylline ethylenediamine (Aminophylline U. S. P.), a clear solution is obtained by dissolving the aminophylline in the Elixir Benadryl and adding the potassium iodide.

Prescription No. 2—Elixir Redisol has an acid reaction in order to insure the stability of the vitamin $B_{12}$ content. The acid solution liberates the acid form of phenobarbital from the sodium derivative, and phenobarbital is only slightly soluble in water or low alcohol solutions. Sodium phenobarbital 0.5 Gm. is equivalent to approximately 0.46 Gm. of phenobarbital. The following compounding procedures yield clear solutions:

(*a*) Dilute 113 cc. of phenobarbital elixir (containing approximately 0.46 Gm. of phenobarbital) with water to 180 cc. and add enough Elixir Redisol to make 360 cc. In order to administer the required amounts of the therapeutic agents, the originally prescribed dose would be doubled. If the product is to be kept for long periods, the use of 20 per cent alcohol solution instead of water for dilution of the phenobarbital elixir will further insure stability.

(*b*) If the flavor of the mixed elixirs is objectionable, or if the doubled dose is undesirable, the following procedure can be used: Dissolve 0.46 Gm. of phenobarbital in a mixture of 4 cc. of alcohol and 4 cc. of Tween 20, and add Elixir Redisol to make 180 cc. Tween 20 is manufactured by Atlas Powder Company, Wilmington, Del., and is obtainable in small lots from the R. F. Revson Co., 243 West 17th St., New York, N. Y., or other small lot dealers.

In order to obtain a stable solution without the use of the Tween 20, the phenobarbital would be dissolved in at least 15 cc. of alcohol and made up to 180 cc. with Elixir Redisol. This would give a product containing about 12–13 per cent of alcohol. When 10 cc. of alcohol was used to dissolve the phenobarbital, the diluted product deposited crystals of phenobarbital in several hours.

The above procedure (*b*) would reduce the concentration of the vitamin $B_{12}$ in the final product by about 4.4 per cent. However, since there is generally an excess of the vitamin in such preparations as Elixir Redisol, the small reduction should not interfere with the intended use.

The prescribing physician should be consulted before any alteration of an ingredient in a prescription is made.

## Prescription Interpretation

*How should the following prescription be interpreted: Sod. Salicylate and Colchicum Mixt., 8 fl. oz.?—J. T., Washington, D. C.*

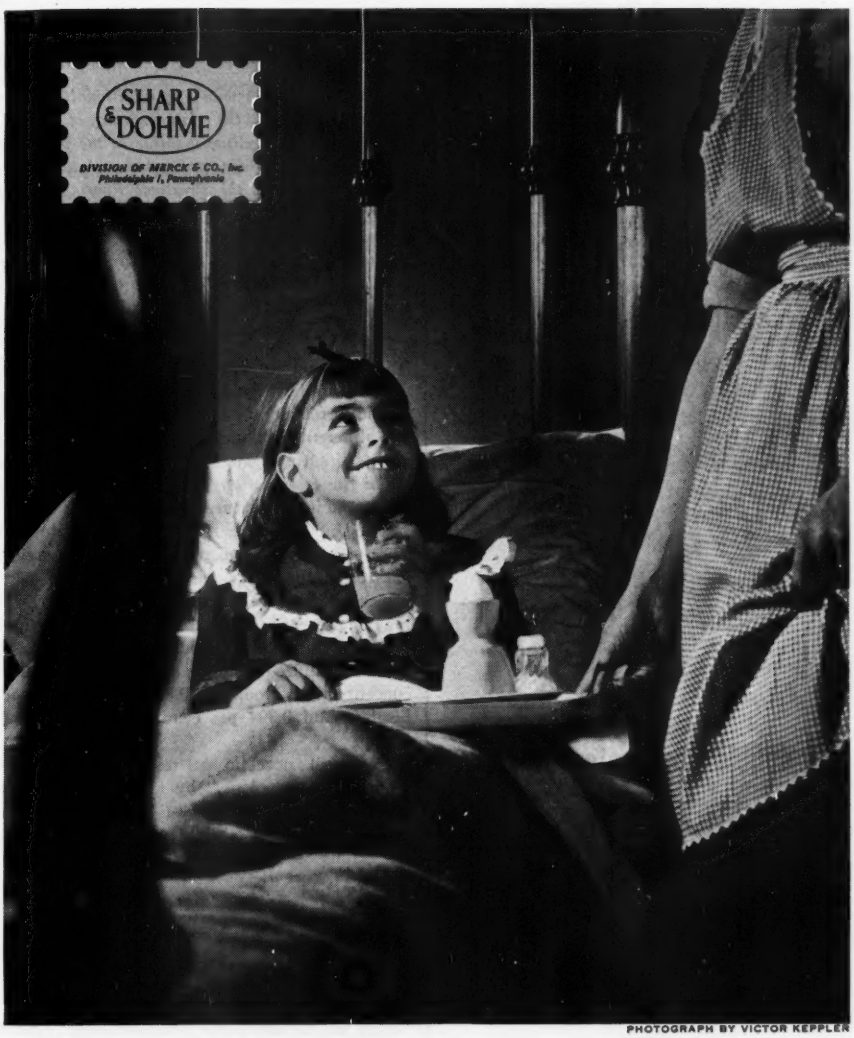
The following mixture is included in the *Johns Hopkins Hospital Formulary* and is referred to as sodium salicylate and colchicum mixture by staff physicians and interns:

| | |
|---|---|
| Sodium salicylate | 30 |
| Colchicum seed tincture | 30 |
| Syrup sarsaparilla compound | 60 |
| Water *q. s.* | 180 |

## Vitamin $B_{12}$—Pharmaceutical Information

Useful information for the compounder and the manufacturer is presented in a new Merck Service Bulletin "Vitamin $B_{12}$." In addition to the chemical and physical properties, the conditions for formulation are described. Requirements for stability of the vitamin in liquid dosage forms, such as an optimum *p*H range 4.5–5.0; lists of compatible and incompatible substances; and a stability testing procedure are given. Different assay methods are described. The 23-page bulletin is published by Merck & Co., Inc., Rahway, N. J.

***(Continued on page 72)***




PHOTOGRAPH BY VICTOR KEPPLER

## "Now I can swallow easily—my throat's much better"

# TRACINETS®

BACITRACIN-TYROTHRICIN TROCHES WITH BENZOCAINE

**Your patients will like TRACINETS** because they really soothe irritated throats—taste good, besides.

Two topical antibiotics combined, bacitracin and tyrothricin, give your patients double antibacterial action, while benzocaine provides a soothing, anesthetic effect. In severe throat infections, TRACINETS conveniently supplement systemic therapy.

**Quick Information:** Each troche contains 50 units of bacitracin, 1 mg. of tyrothricin, 5 mg. of benzocaine. In vials of 12.

This advertisement is appearing in current medical journals as part of Sharp & Dohme's promotion to the profession.

sales have quadrupled

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A. G. Howard

double your sales of
BENZEDREX* INHALER
with the new display carton
(Council-accepted)

*Smith, Kline & French*
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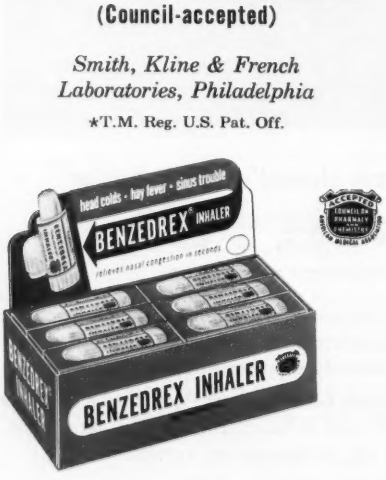
*T.M. Reg. U.S. Pat. Off.




## Information Service

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### More About Eserine Ophthalmic Solution

*Please supply us with any additional information you may have about the relative efficacy of 0.1 per cent and 1.0 per cent sodium bisulfite in the prevention of color changes in eserine ophthalmic solutions. In the September issue of the Practical Pharmacy Edition, a formula containing 0.1 per cent of sodium sulfite was given. However, we noticed that 1.0 per cent of sodium sulfite was included in a formula mentioned in an article on "Antibacterial Agents in Ophthalmic Solutions," by S. W. Goldstein, in the August, 1953, issue. —S. A. B., Montreal, Canada.*

The test mixtures in the August article referred to are not to be considered as recommended therapeutic formulas. In the study of compatibilities of the different antibacterial agents with medicinal agents, high concentrations were used in order to make the tests as severe as might possibly be encountered if the mixtures were used.

The U. S. P., under *Added Substances*, states that: "For the preservation of solutions of organic substances intended for parenteral administration or topical application, in addition to Injections, there may be present in the solutions. . . not more than 0.2 per cent of sulfur dioxide, or its equivalent of sodium bisulfite or sodium sulfite." The equivalent concentrations would be 0.325 per cent of sodium bisulfite and 0.394 per cent of anhydrous sodium sulfite.

You will note in an article "Self-Sterilizing Ophthalmic Solutions," by H. W. Hind and I. J. Szekely, THIS JOURNAL, **14**, 644(October, 1953), the buffer solution for eserine contains 0.1 per cent of anhydrous sodium sulfite. This concentration appears to be satisfactory if the solution is kept in a well-closed container and protected from light. The presence of boric acid also tends to retard the change in color.

### Enema-Replacing Suppository

*Can you tell me if the following rectal suppository used by Mayo Clinic in place of enemas can be bought commercially:*

| | |
|---|---|
| *Sodium bicarbonate* | 0.60 |
| *Potassium bitartrate* | 0.90 |
| *Calcium silicate* | 0.05 |
| *Bentonite U. S. P. XIII* | 0.30 |
| *Polyethylene glycol* | 0.20 |
| *Dextran 282* | 0.05 |
| *Cocoa butter* | 0.05 |
| *Vegetable lecithin* | 0.10 |

*Talc. q.s. to make one suppository.*

*—McG., Lawrence, Mass.*

The suppositories of the above formula that were used at the Mayo Clinic were supplied by Pharmacia Laboratories, Inc., Rochester, Minn. [See THIS JOURNAL, **14**, 741 (Dec., 1953).]

### Masking Bitter Taste of Procaine or Procaine HCl

*What is the best flavoring agent that might mask the bitter taste of procaine in suspension or of procaine hydrochloride in solution for oral administration?—R. G. M., Los Angeles, Calif.*

A report on the effectiveness of different flavoring agents on masking the bitterness of quinine hydrochloride was published in THIS JOURNAL, *Sci. Ed.*, **40**, 83(1951). Cacao syrup was found to be the best masking agent.

### Sun-Tan Cream and Lotion

*Could you suggest formulas for a creamy, nonoily liquid and a hydro-alcoholic sun-tan preparation?—M. L. B., Hempstead, N. Y.*

The following formulas for sun-tan preparations appear in *Modern Cosmeticology* by R. G. Harry, Chemical Publishing Co., Inc., Brooklyn, N. Y., 1947, page 155.

Liquid Emulsified Cream

| | |
|---|---|
| Avocado pear oil | 2 0 |
| Sun screen (menthyl salicylate or other agent) | 8.0 |
| Stearic acid | 4.0 |
| Triethanolamine | 0.8 |
| Lanolin | 2.0 |
| Glycerin | 5.0 |
| Water | 78.2 |
| Preservative (methylparaben or other preservative) | 0.1 |

Follow the compounding procedure given in the National Formulary under N. F. Sun Cream.

Hydro-Alcoholic Sun-Tan Lotion

| | |
|---|---|
| Sun screen [See list of compounds in J.A.PH.A., *Sci. Ed.*, **41**, 493(1952)] | 5 |
| Alcohol, 95 per cent | 35 |
| Glycerin | 10 |
| Water | 50 |

Mix to make a solution. If a faster drying product is desired, increase the proportion of alcohol.

The following formula is given in the catalog of Goldschmidt Chemical Corporation, *Emulsifiers*, 153 Waverly Place, New York 14, N. Y. The ingredient "Tegin P" is supplied by this company.

Sun-Tan Cream

| | |
|---|---|
| Tegin P | 3.5 |
| Stearic acid | 13.4 |
| Mineral oil | 2.0 |
| Lanolin | 1.0 |
| Menthyl salicylate | 8.0 |
| Triethanolamine | 0.7 |
| Glycerin | 1.7 |
| Water | 69.7 |

Follow the compounding procedure given in the National Formulary under N. F. Sun Cream.


increased my volume 300%

**PEORIA, ILL.** "Merchandise well displayed is half sold, but I didn't realize a counter display of 'Benzedrex' Inhalers would increase my volume by 300%."

Richard H. Bogard

Richard H. Bogard

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*T.M. Reg. U.S. Pat. Off.

# NEW PRESCRIPTION PRODUCTS

*All items on which information has been received in the past thirty days are reported here. Manufacturers are urged to send details of their new products as early as possible, so that pharmacists through these pages, will have full information at the same time, or even before, products are detailed to the physician. For inclusion in this free editorial department, send descriptive literature to the* JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, *2215 Constitution Avenue, N. W., Washington, D. C. Where possible, all descriptions should follow the style shown on these pages.*

## Almegesic Tablets

*Description:* Each tablet contains pyrilamine maleate, 25 mg.; hyoscyamine HBr, 0.04 mg.; hyoscine HBr, 0.008 mg.; aspirin, 225 mg.; acetophenetidin, 150 mg.; and caffeine, 30 mg.

*Indications:* For the symptomatic relief of colds, hay fever, and nasal discharge.

*Administration:* For adults, 1 tablet 4 times daily.

*Form Supplied:* In bottles of 100 and 1,000.

*Source:* Meyer Chemical Co., Inc., Detroit 24, Mich.

## Mol-Iron Panhemic Capsules

*Description:* Each capsule contains ferrous sulfate, 500 mg.; molybdenum oxide, 7.7 mg.; intrinsic factor concentrate, 100 mg.; vitamin $B_{12}$, 15 mcg.; folic acid, 1.25 mg.; and ascorbic acid, 75 mg.

*Indications:* For the treatment of pernicious anemia, nutritional megaloblastic anemias, and hypochromic (iron deficiency) anemias.

*Administration:* One capsule twice daily.

*Form Supplied:* Bottles of 60 and 500 capsules.

*Source:* White Laboratories, Inc., Kenilworth, N. J.

## Serpiloid Tablets

*Description:* Each scored tablet contains 0.25 mg. of Serpiloid (reserpine, a rauwolfia alkaloid).

*Indications:* In the management of mild to moderate degrees of hypertension and as an adjunct to more potent hypotensive agents (e. g., Veriloid or hexamethonium) in severe or resistant cases.

*Administration:* One 0.25-mg. tablet 3 to 4 times a day. Since full therapeutic effect is slow to develop, administration of Serpiloid should be continued for at least two weeks before making any major adjustments of dosage. The patient should be seen frequently. After the therapeutic effect has been brought about, many mild to moderate hypertensives may be maintained on a lower dosage of 1 to 2 tablets daily. If the response to Serpiloid is deemed inadequate another more potent hypotensive agent may be added to the regimen (Veriloid or hexamethonium).

*Form Supplied:* 0.25-mg. tablets in bottles of 100 and 500.

*Source:* Riker Laboratories, Inc., Los Angeles, Calif.

## Thytropar Powder

*Description:* Each 6-cc. vial contains powder equivalent to 10 U. S. P. units of thyrotropic activity, each unit representing the potency of 20 mg. of U. S. P. reference substance. Thytropar is stable indefinitely at room temperature while in the dry state. It dissolves readily in physiologic salt solution and retains its potency in solution for at least four days, if refrigerated.

*Indications:* To help differentiate primary thyroid myxedema from that due to pituitary insufficiency. To intensify the effect of iodine-131 in the treatment of functional thyroid malignancy. To shorten the course of acute thyroiditis.

*Administration:* A single intramuscular injection of ten units produces a consistent rise in the serum protein-bound iodine in myxedema of pituitary origin, but fails to do so in the thyroid type. Thytropar, in a single ten-unit intramuscular dose, given before the iodine-131, produces a marked increase in the uptake of iodine in the thyroid tumor, thus increasing the concentration of radioactivity in the tumor tissue. This self-limited condition may last as long as eighteen months.

*Caution:* If pituitary myxedema is suspected, Thytropar should be administered as cautiously as thyroid extract, to avoid precipitating adrenocortical insufficiency.

*Form Supplied:* 6-cc. vials.

*Source:* The Armour Laboratories, Chicago, Ill.

## Tridipigen, Alum Precipitated

*Description:* Tridipigen, Alum Precipitated is diphtheria and tetanus toxoids and pertussis vaccine combined, alum precipitated.

*Indications:* For immunizing simultaneously against diphtheria, whooping cough, and tetanus; particularly when immunization is begun before the age of six months.

*Administration:* Total immunizing dose—12 NIH protective antigen units of pertussis vaccine; 3 doses of 0.5 cc. each, with intervals of four to six weeks between doses.

*Form Supplied:* 7.5-cc. bottles.

*Source:* Eli Lilly and Company, Indianapolis, Ind.

### Vi-Dexemin Tablets

*Description:* Each tablet contains: dextroamphetamine sulfate, 5 mg.; vitamin A, 5,000 units; vitamin D, 500 units; thiamine mononitrate, 3 mg.; riboflavin, 2 mg.; calcium pantothenate (as pantothenyl alcohol), 1 mg.; pyridoxine hydrochloride, 0.5 mg.; vitamin $B_{12}$, 1 mcg.; folic acid, 0.4 mg.; ascorbic acid, 25 mg.; nicotinamide, 20 mg.; calcium (as calcium phosphate, dibasic), 500 mg.; iron (as ferrous sulfate, exsiccated), 12 mg.; and iodine (as potassium iodide), 0.1 mg.

*Indications:* For the control of weight in pregnancy and for the reduction of weight in obesity.

*Administration:* The usual dosage is one tablet three times a day—taken thirty to sixty minutes before meals.

*Caution:* Vi-Dexemin should be used with caution in patients hypersensitive to sympathomimetic compounds; in those cases of coronary or cardiovascular disease in which vasoconstrictors are contraindicated; and in the presence of *marked* hypertension.

*Form Supplied:* Bottles of 100 tablets.

*Source:* Smith, Kline & French Laboratories, Philadelphia, Pa.

## Other New Products

**(Chemicals clinical trial drugs, diagnostic aids, and equipment for the retail and hospital pharmacy)**

### Dexaline L. A. Capsules

*Meyer Chemical Company's* Dexaline L. A. Capsules contain 15 mg. dextro-amphetamine sulfate in specially coated pellets which are designed to release the drug over a six- to ten-hour period. They are available in bottles of 100 and 1,000.

### Erythrocin with Sulfas Tablets

*Abbott Laboratories'* new "film-sealed," buffered, easily swallowed Erythrocin with Sulfas Tablets contain in each tablet: Erythrocin (as erythromycin stearate), 75 mg.; sulfadiazine and sulfamerazine (as sodium salts), 111 mg. each; sulfamethazine, 111 mg.; buffered with aluminum-hydroxide to protect the erythromycin from the gastric secretions and to permit absorption from the upper intestine. They are supplied in bottles of 25 and 100 tablets.

### Gantricillin (acetyl)-200

*Hoffmann-La Roche Inc.* has introduced Gantricillin (acetyl)-200, a new, cherry-flavored, antibacterial suspension, especially for children. Each 5 cc. (teaspoonful) contains 200,000 units of penicillin G potassium plus 0.5 Gm. of Gantrisin, the highly soluble, wide-spectrum, single sulfonamide, in the form of Gantrisin (acetyl). It is available in 60-cc. bottles containing an amount of powder sufficient for the preparation of 60 cc. of suspension.

### Hydrepel-A and Hydrepel-S (with Silicone) Creams

Hydrepel-A and Hydrepel-S (with silicone) recently introduced on the market by *Hygiene Research, Inc.*, are two creams which protect the skin against irritants dissolved or suspended in water. They are plasticized combinations of ethyl cellulose and castor oil in mixed propanols with a water-repellent vanishing cream base. Hydrepel-S contains silicone (dimethyl polysiloxane) in addition. They are easily removed with Hydrepel Remover which consists solely of mixed propanols. These creams should not be applied to open wounds or around the eyes.

### K-Cillin Liquid

K-Cillin liquid is a stable suspension of potassium penicillin for oral administration, now being marketed by *Bio-Ramo Drug Company*. K-Cillin will be supplied in various strengths, with two formulations available initially. One formulation provides 300,000 units of penicillin in a 5-cc. dose, approximating one teaspoonful; another formulation provides 600,000 units in a dosage of similar volume.

### Nitranitol R. S. Tablets

*The Wm. S. Merrell Company* has recently introduced Nitranitol R. S. Tablets. Like other Nitranitol products it is virtually free of any toxic effects, making it suitable for long-term treatment of essential hypertension. Each tablet contains 32 mg. of Nitranitol (mannitol hexanitrate) and 0.5 mg. of *Rauwolfia serpentina*. The tablets are supplied in bottles of 100.

### Norwich Children's Nose Drops with Neo-Synephrine

Norwich Children's Nose Drops with Neo-Synephrine is a new *Norwich Pharmacal Co.* product developed as an effective aid in reducing congestion of the nasal mucous membranes caused by head colds or hay fever.

### Paraderm—Burn Ointment

*Bara Farmacal Corporation* announces Paraderm–Burn Ointment which contains approximately 19 per cent of Phenysal, a mixture of phenyl salicylate and cetyl alcohol, homogenized in a base containing lanolin, neatsfoot oil, olive oil, and cod liver oil. It is supplied in 2-oz. tubes.

### Salpacine Tablets—New Package Size

Salpacine, analgesic tablets for symptomatic treatment of rheumatic disorders, distributed by *Vale Chemical Company, Inc.*, is now available in bottles of 100, 500, and 1,000.

*(See Index on page 79)*

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Tetra

basic among

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antibiotics

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BASIC *to the expanding antibiotic business*

BASIC *to the modern practice of medicine*

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*its range of antimicrobial action*
*is unsurpassed*
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NEW EFFERVESCING ANALGESIC • ANTIPYRETIC

The prompt, prolonged, *prescribed* relief provided by effervescing *Apamide-Ves* appeals to both physician and patient...promises *profitable prescription volume business for you.*

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*Apamide-Ves* is prescribed for the many patients requiring relief of pain and reduction of fever in respiratory infections, functional headache, muscular or joint pain, dysmenorrhea, and dental pain.

A comprehensive promotion of *Apamide-Ves* is reaching every physician in your neighborhood. We suggest that you stock an adequate supply of *Apamide-Ves* from your wholesaler...*now.*

*Apamide-Ves* Tablets: Effervescing analgesic-antipyretic; individually foil-wrapped; packages of 50.

***and don't forget***

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**AMES** The FREESCRIPTION® House
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Ames Company of Canada, Ltd., Toronto

81053

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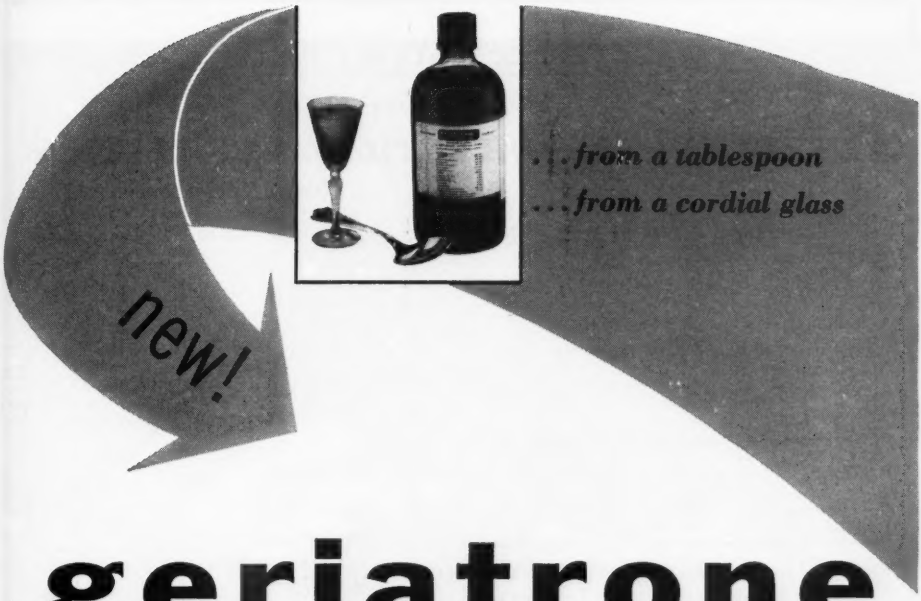


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**B complex vitamins . . .**

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| pepsin | 126 mg. |
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| Yeast Extract* | 220 mg. |
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| Inositol | 100 mg. |
| Thiamine HCl ($B_1$) | 4 mg. |
| Riboflavin ($B_2$) | 2 mg. |
| Pyridoxine HCl ($B_6$) | 2 mg. |
| Panthenol | 2 mg. |
| Niacinamide | 20 mg. |
| Calcium Glycerophosphate | 300 mg. |
| Manganese Glycerophosphate | 15 mg. |

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# AMERICAN PHARMACEUTICAL ASSOCIATION

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**Boston Convention and Visitors Bureau**
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HOTEL.....Second Choice

HOTEL.....Third Choice

Number of room(s) with bath.....Double room(s).....Rate preferred $.....

.....Twin Bedded room(s).....Rate preferred $.....

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Arriving August.....a.m.....p.m.....Leaving August.....

A "double" room contains only one bed for occupancy by two persons.

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Please print the names of both persons for each double room or twin bedded rooms requested. Also names of all persons for whom you are requesting reservations and who will occupy the rooms asked for. OTHERWISE THE APPLICATION WILL BE RETURNED.

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| Bellevue Hotel | 5.00– 7.50 | 7.50–10.00 | 9.50–16.00 | |
| Bradford Hotel | 4.95– 6.75 | 7.75– 9.50 | 9.50–13.00 | 14.00–18.00 |
| Kenmore Hotel | 5.50– 9.00 | 9.00–12.50 | 9.50–13.00 | 14.00–20.00 |
| Lenox Hotel | 4.50– 6.00 | 6.50– 8.50 | 10.00 | 11.00–16.00 |
| Manger Hotel | 5.00– 7.50 | 7.50– 9.50 | 9.00–11.00 | |
| The Parker House | 6.00– 8.75 | 9.50–10.00 | 11.00–14.00 | 23.00–25.00 |
| Sheraton Plaza Hotel | 5.85 up | 9.00 up | 11.00 up | 25.00 up |
| Somerset Hotel | 7.00–10.00 | 10.00–14.00 | 12.00–15.00 | 18.00–40.00 |
| Touraine Hotel | 5.50– 8.00 | 8.00–10.00 | 8.50–12.00 | 18.00 |
| Vendome Hotel | 4.50– 6.00 | 7.00–10.00 | 8.00–11.00 | 12.00–20.00 |

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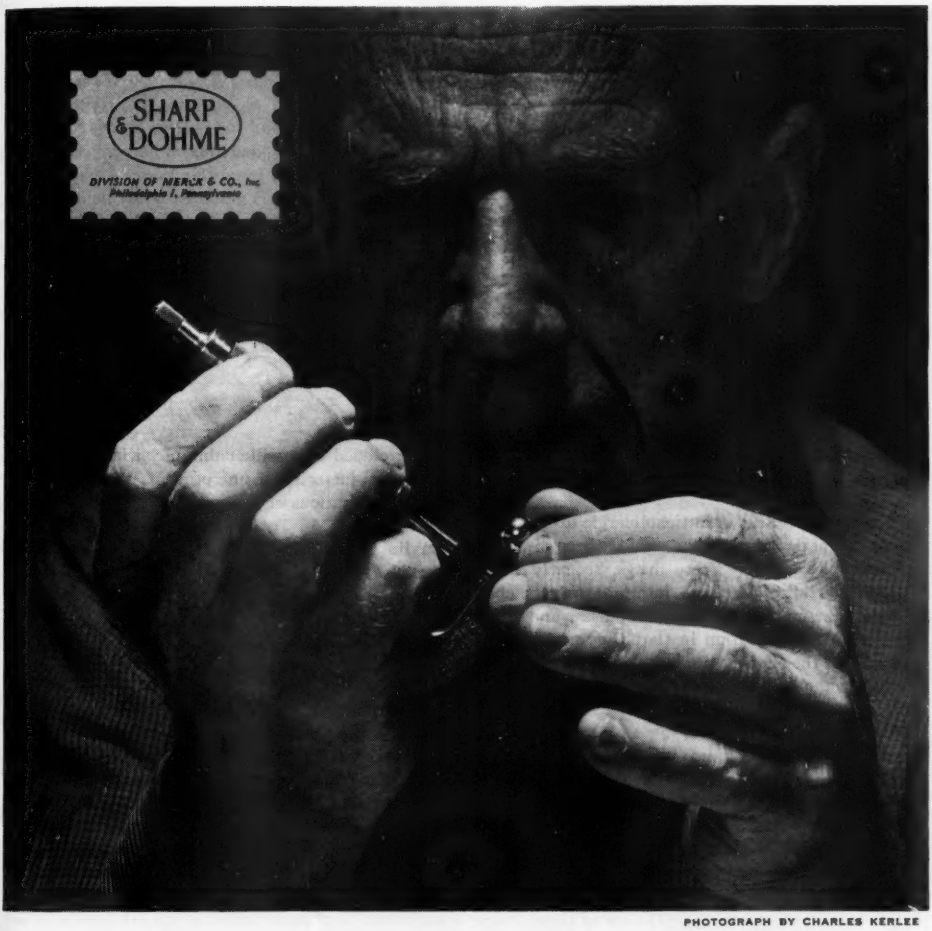


PHOTOGRAPH BY CHARLES KERLEE

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CRYSTALLINE VITAMIN $B_{12}$

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Clinical evidence also shows the value of vitamin $B_{12}$ in tropical and non-tropical sprue. In trigeminal neuralgia, pain is remarkably relieved.

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*From a case report J.A.M.A. 153:191, 1953.

This advertisement is appearing in current medical journals as part of Sharp & Dohme's promotion to the profession.

RECENT

# PROGRESS IN MEDICINE

## Anticholinergic Drugs in Treatment of Peptic Ulcer

The present status of anticholinergic drugs in the treatment of peptic ulcer has recently been discussed by four physicians. These drugs, recently introduced into clinical medicine, interfere with the cholinergic transmission of nerve impulses, and differ from the atropine group in that they are effective not only at the effector site but also at the parasympathetic ganglions. The cholinergic blocking agents currently available include methantheline (Banthine), diphenmethanil (Prantal), oxyphenonium bromide (Antrenyl), and propantheline bromide (Pro-Banthine).

The anticholinergic drugs are effective in reducing both secretory and motor activity of the stomach, and are very useful adjuncts to the conventional management of active peptic ulcer, whether duodenal, gastric, or marginal. The physicians report the following observations on the use of these drugs: "Their most striking clinical effect is the relief of ulcer pain, which is frequently dramatic after parenteral administration. It is of interest to note that this relief of pain is synchronous with cessation of gastric motility despite artificially produced high acid values. Relief of pain, however, is not necessarily indicative of healing as ulcer craters have been observed to persist for weeks or months under treatment even though the patient was symptom-free. There are no accurate data on the effect of these drugs on the healing time of ulcer. In fact, measurement of the healing time in duodenal ulcer is so difficult that it is doubtful that such data can be obtained. These agents have been disappointing in the long-term management of ulcer, since recurrences are not prevented and the incidence of complications or the need for surgery are not significantly altered by their prolonged administration. It should be emphasized that these drugs are not necessary in the management of the simple, uncomplicated ulcer. It is to be hoped that more effective compounds will be developed that will enable physicians to control more satisfactorily, if not prevent, the recurrences and complications of peptic ulcer."

[Ruffin, J. M., Texter, E. C., Carter, D. D., and Baylin, G. J., *J. Am. Med. Assoc.*, **153**, 1159(November 28, 1953).]

## Dermatologic Therapy

An interesting, comprehensive, yet concise, review of old and new therapeutic procedures and drugs used in dermatologic therapy is reported by Dr. J. G. Downing. Stating that "dermatologic therapy is quite an art," and "the older the dermatologist, the fewer the drugs he uses," Dr. Downing stresses the importance of the older therapy, particularly with regard to giving the patient symptomatic relief.

The cases in which iodides, mercury, bismuth, antimony, and many other drugs are indicated are apparently unknown to many physicians. However, it is the field of topical therapy that is most neglected. Many physicians do not attempt to establish a definite diagnosis before the medication is given. One should try to establish the diagnosis and recognize the stage of the eruption before suitable local therapy is prescribed, and this should be used even if an antibiotic or steroid is prescribed systemically. The physician must remember that he is treating a patient alarmed and uncomfortable from a cutaneous disease. Reassurance and the use of tested and reliable medication is more advisable than trying out a new drug that still lacks adequate appraisal.

No new cures have been found for any of the serious skin diseases. Therefore, until these new drugs are thoroughly tested it is safer to use medication that will not sensitize the patient or cause severe toxic reactions.

[Downing, John G., *New Engl. J. Med.*, **249**, 976 (December 10, 1953).]

### Dehydrating Jelly to Clear Corneal Bedewing

A jelly which draws liquid through the cornea to effect removal of the "ground glass" appearance of bedewing is prepared by dissolving sodium carboxymethylcellulose, 2 per cent, in glycerin at 70° C. The jelly is very stable, but the fine-tipped tubes containing it should be kept capped when not in use. The jelly has been administered without ill effect to the corneal surfaces, avoiding conjunctival contact, of about 200 patients, by the following procedure: First anesthetize the corneal and conjunctival surfaces with two or three instillations of a topical anesthetic, such as 0.5 per cent tetracaine hydrochloride. Then separate the lids and place a small amount of the dehydrating jelly on the corneal surface. Advise the patient not to wink. If the lids are held open by the physician, he should keep the lower lid in contact with the globe to prevent the jelly from sliding into the lower fornix and reaching the conjunctiva. Clearing of the corneal epithelium generally is evident within a minute. The clearing can be increased by spreading the jelly on the cornea with a glass rod, at the same time gently massaging the epithelium with the rod. Appreciable clearing of stromal edema or large vesicles should not be expected. The jelly is fairly transparent, and tends to liquefy as it takes up water. It does not appreciably interfere with biomicroscopy but can be removed, if necessary, by irrigation. The degree and duration of the clearing of the cornea by the jelly are more marked and prolonged than when glycerin alone is used, even when it is combined with local anesthesia and massage of the epithelium.

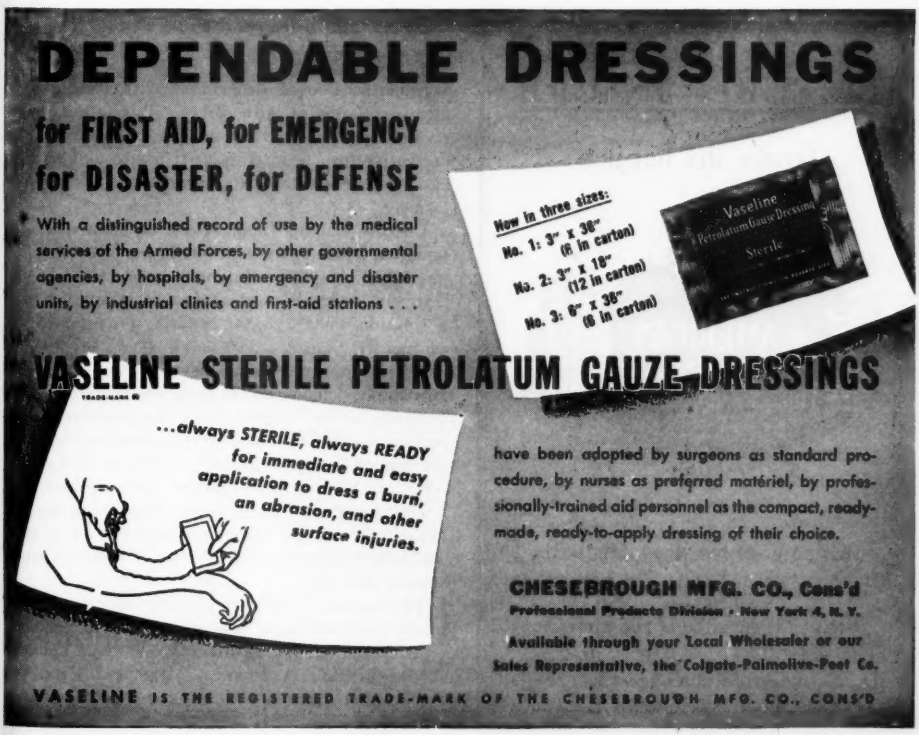
[Swan, Kenneth C., *Arch. Ophthalmol.*, **50,** 75 (July, 1953).]

### Statement on Chloramphenicol

Although reports following the first disclosures of untoward reactions to chloramphenicol indicated that an undue state of alarm had been created, a recent report of the A.M.A. Council on Pharmacy and Chemistry included the following statement, which appears in the 1953 edition of *New and Nonofficial Remedies:* "Because of the occurrence of serious and fatal blood dyscrasias, it is advisable to restrict the use of chloramphenicol to the treatment of typhoid fever and other serious infectious diseases caused by organisms controlled by chloramphenicol but resistant to other antibitoics or other forms of treatment."

[Report Am. Med. Assoc. Council on Pharm. and Chem., *J. Am. Med. Assoc.*, **154,** 144(Jan. 9, 1954).]

***(Continued on next page)***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## Recent Progress

• • • • • • • • • • • • • • *from page 85*

### Cortisone Effective in Facial Paralysis

Cortisone treatment of two children afflicted with Bell's palsy or facial paralysis resulted in complete recovery in 13 and 17 days, respectively. The oral dosage for a thirteen-year-old girl was two 25-mg. tablets of cortisone three times a day for forty-eight hours; two tablets twice a day for twenty-four hours; and one tablet three times a day for the next ten days. A five-year-old boy was given orally 25 mg. of cortisone followed with 12.5 mg. every six hours for the first day; 12.5 mg. every six hours for four days; 12.5 mg. three times a day for nine days; and 12.5 mg. daily for three days. Bell's palsy usually runs its course in not less than several months when recovery results. This report by Drs. W. P. Robison and B. F. Moss corroborates an earlier report on the use of cortisone in six cases by Dr. H. H. Rothendler.

[Robison, W. P., and Moss, B. F., *J. Am. Med. Assoc.*, **154,** 142(Jan. 9, 1954).]

### Chloromycetin Effectiveness in Gonorrhea

A single oral dose of 2 Gm. of Chloromycetin (chloramphenicol) was found to be adequate for the treatment of gonorrhea by two Detroit Health Department physicians. The 2-Gm. oral dose produced 93.3 per cent bacteriologic cures in 226 patients with simple acute gonorrhea; while a 1-Gm. oral dose produced 88.7 per cent negative urethral cultures about one week after treatment. The use of Chloromycetin in the treatment of penicillin-sensitive patients is recommended. However, as indicated by the 97.4 per cent of cures in patients treated with 300,000 units of intramuscular procaine penicillin, penicillin is more efficacious in the treatment of acute gonococcal urethritis.

[Barrett, C. D., Jr., and Burton, M. E., *Am. J. Syphilis, Gonorrhea and Venereal Diseases,* **37,** 165 (1953).]

### Ophthaine—New Ophthalmic Anesthetic

Results of clinical trials of Ophthaine, a new topical anesthetic for the eye, are reported by two New York physicians. The drug, 2-diethylaminoethyl-3-amino-4-propoxybenzoate, was used in 0.25 and 0.5 per cent concentrations in physiologic saline solution, which contained 0.5 per cent chlorobutanol. The 0.5 per cent solution caused less stinging or pain on instillation than was noted with 0.5 per cent solution of tetracaine, while the potency, rapidity of onset, and duration of action were similar with both drugs. No case of drug sensitivity was noted in the trial series.

[Boozan, C. W., and Cohen, I. J., *Am. J. Ophthalmol,* **36,** 1619(November, 1953).]

### Dextran Sulfate—Synthetic Heparin Analog

Heparin is an anticoagulant with considerable latitude of dosage with safety. It requires, however, frequent parenteral administration and as a derivative from animal tissue it has caused sensitization; its chemical composition is not always uniform.

Dextran sulfate (made from dextran which is prepared from sugar) solution, 20 per cent (w/v) in physiological saline solution, can be sterilized by Seitz filtration. Tested against standard heparin, a solution showed 3,000 heparin units per cubic centimeter.

Therapeutic trials with this solution by a group of British physicians indicate that, administered intravenously either intermittently by repeated venepuncture or by continuous intravenous infusion in a solution of 5 per cent glucose in 0.45 per cent saline solution, the drug is an effective anticoagulant producing a response qualitatively resembling that of heparin but lasting somewhat longer. No serious side effects were noted in 20 cases in which dextran sulfate was used.

The control of therapy requires only the determination of clotting time before each injection.

[Ricketts, C. R., Walton, K. W., van Leuven, B. D., Birbeck, A., Brown, Alexander, Kennedy, A. C., and Burt, C. C., *Lancet* (*London*), **265,** 1004(November 14, 1953).]

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## Better Conditions for Disabled Veterans

Decided improvement during recent years in the national "climate of opinion" in regard to the training and employment of disabled veterans is typical of gains made in the general field of hiring the handicapped, Harvey V. Higley, Administrator of Veterans' Affairs stated in an editorial in the February issue of *Performance*, monthly magazine of the President's Committee on Employment of the Physically Handicapped.

"The Veterans' Administration," he said, "has the responsibility of providing vocational rehabilitation training for veterans disabled while serving their country. Before this can be done for those requiring industrial training, an establishment must be found that is willing to accept them. During recent years, the Veterans' Administration has noticed a definite change for the better. It has become a great deal easier to locate training opportunities for disabled veterans."

In regard to actual placement of veterans in jobs, Mr. Higley said: "Here, too, a heartening trend has been observed. Employers today appear to be more willing not only to hire fully-trained disabled veterans, but also keep them on the job. And they do so not through sentiment, not through conscience, not through charity, but because the handicapped have demonstrated beyond doubt that they are the equals, and often the superiors, of their able-bodied fellow employees."

## Attack Warnings Now in Use

*Warning Yellow*—Means an attack by hostile aircraft is probable. It is recommended that Warning Yellow be made public by civil defense authorities, by all appropriate means, *except* audible public warning devices such as sirens, horns and whistles shall not be used under any circumstances. The use of radio and television broadcast facilities is considered the most expeditious means available.

*Warning Red*—Means an attack by hostile aircraft is imminent. This is the first signal utilizing all public warning device systems. Except where local civil defense authority directs otherwise, the public will take cover immediately and stay under cover until the Warning White.

*Warning White*—Means that attack is now improbable. Disseminated by public warning devices and AM radio, providing it follows Warning Red. Public warning devices will *not* be used if Warning White follows Warning Yellow.

## Anesthesia Space-Helmet

Navy doctors have perfected an anesthesia "space helmet" which children can wear for flights into unconsciousness without suffering the fears that normally beset them on the eve of surgical treatment.

Marking another "first" in the field of medicine and surgery for the National Naval Medical Center, Bethesda, Md., the transparent plastic space helmet was originated and perfected by Commander D. J. Giorgio, chief of anesthesia, and his associate, Lt. J. G. Morrow.

"Our original intention," Dr. Morrow said, "was to eliminate the fear that children usually have during induction of anesthesia." He said that methods formerly used were unsatisfactory because of fear associated with the anesthetic apparatus as well as marked disinterest in the odor and taste of the anesthetic agents used.

The new helmet eliminates much of the unpleasantness formerly associated with inducing anesthesia and removes a considerable amount of fear that the average child associates with hospitals and hospital attendants when undergoing anesthesia. The clear plastic permits him a wide-range view of his surroundings and he is assured that oxygen is being introduced into the helmet to permit him to breathe freely while he is on his "space trip."

After cyclopropane gas and oxygen are applied and the patient is unconscious, the helmet is removed, ether administered, and the necessary operation performed.

# NEW IN THE HYPERTENSION FIELD

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Each Rauvera tablet provides 1 mg. of Rauwolfia serpentina alkaloids (alseroxylon fraction) and 3 mg. of Veratrum viride alkaloids (alkavervir). Both are tested in dogs for hypotensive activity. In addition to exerting its own hypotensive effect, Rauwolfia serpentina calms and relaxes the patient, overcomes troublesome tachycardia, and relieves such annoying symptoms as headache, dizziness, and tinnitus. The potent hypotensive action of alkavervir, superimposed on this base, leads to a gratifying drop in blood pressure.

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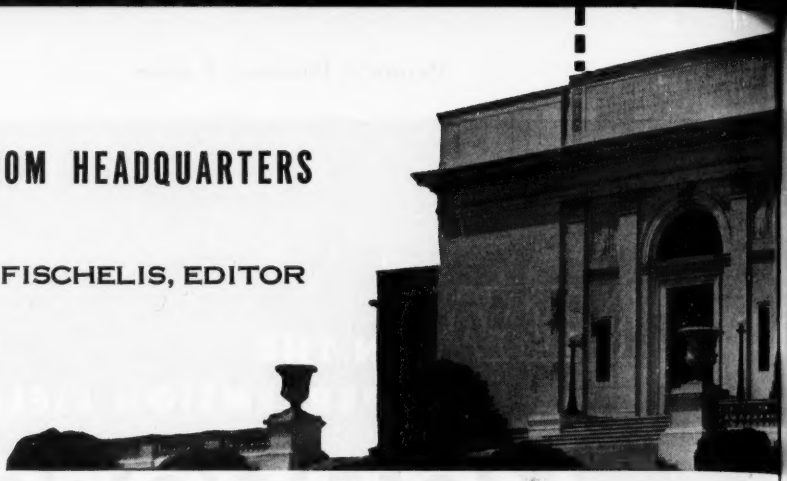
# STRAIGHT FROM HEADQUARTERS

ROBERT P. FISCHELIS, EDITOR



## Progress Toward Interprofessional Cooperation

THE first step in carrying out the provisions of the resolution adopted by the AMERICAN PHARMACEUTICAL ASSOCIATION at its 1953 Convention in Salt Lake City, to bring together representatives of the allied health professions for the purpose of exploring some of the problems dealing with the production, distribution, and administration of drugs was taken on February 4 in Washington, D. C.

Responding to the invitation of the AMERICAN PHARMACEUTICAL ASSOCIATION, representatives of medicine, dentistry, nursing, public health, hospitals, veterinary medicine, and all of the various branches of pharmacy and the drug industry met for an all-day conference in the lecture room of the National Academy of Sciences, which is located adjacent to the American Institute of Pharmacy, headquarters of the AMERICAN PHARMACEUTICAL ASSOCIATION.

The work of the Conference was divided into two major workshops. The morning session was devoted to a consideration of the factors involved in the birth of drugs; the problems stemming from the nomenclature of drugs; channeling drugs from their various sources to the patient; consumption of drugs with and without professional supervision; and a consideration of the necessity and the type of regulation required at federal, state, and local levels in the public interest.

Following an informal buffet luncheon in the rotunda and reading room of the Headquarters Building of the AMERICAN PHARMACEUTICAL ASSOCIATION, the workshop was continued at the National Academy of Sciences in an afternoon session devoted to a discussion of the need for interprofessional understanding and cooperation in the joint effort to bring to the public the benefit of modern developments in the production, distribution, and administration of drugs. At this session, the viewpoints of the medical, dental, veterinary medical, nursing, public health and pharmacy professions, and the drug industry were expressed and steps were taken for the establishment of a continuing committee to analyze and summarize the discussions of the day to determine what further steps should be taken.

In opening the Conference, President F. Royce Franzoni of the A.PH.A., who presided throughout the conference, pointed out that understandings are based upon knowledge of the respective functions and problems of those who must work together in the field of medical care for the best interests of the patient.

"Our Conference today is an attempt at exploration of the possibilities of working out a better interprofessional relationship," said President Franzoni. "We do not propose to accomplish this," he continued, "by pointing out the faults of others or even our own faults. Rather do we believe that a completely informal discussion of factors involved in the production, distribution, and administration of drugs will lead to an unfolding of certain problems which can only be solved properly when there is an appreciation of what is involved in their solution."

He asked the Secretary of the AMERICAN

PHARMACEUTICAL ASSOCIATION, to briefly introduce each topic that was discussed and then called for comment from the groups represented and from individuals who wished to discuss any of the topics.

**Drug Origins and Distribution**

In introducing the topic relating to factors involved in the birth of drugs, it was pointed out that the orthodox procedure of diagnosis, prescribing, and dispensing, through professional channels, is in danger of being superseded by various shortcuts, which will remove professional supervision from these functions unless great care is taken to perpetuate the established procedure. It was indicated that much of this procedure is without specific legal regulation and it is a tribute to the professions involved that the interests of the patients have been so well protected under a voluntary system in which professional ethics rather than the law provide the necessary restraint and self-regulation which assure adequate care for the sick under the most favorable auspices.

To stimulate discussion the Conference was asked: Who shall pay for the research which has been so productive and yet so costly in the development of new drugs? Are we conserving, segregating, and training manpower for the tasks involved in these researches? Shall there be pooling of research effort to expedite progress in the development of new drugs? How shall we determine whether any newly devised compound or product is worth while—worth clinical trial? What kind of professional understanding should exist between the professions to facilitate early distribution of worth-while discoveries without the dangers of raising false hopes in the sick through overzealousness in publicizing discoveries?

**Nomenclature and Ethics**

In leading to the discussion of problems growing out of the nomenclature of drugs, the international importance of establishment of generic and trade-mark names for drugs was noted. It was also pointed out that there are some abuses of the trade-mark rights and privileges and the question was asked whether there should be more rigidly enforced rules or codes of ethics in this field for the best interest of all concerned.

In channeling drugs from their sources to the patient, the question whether existing channels are satisfactory or whether they should be extended was raised. This led to discussion of how these channels of distribution can be protected so that the interests of the patient will not be jeopardized. Then came a consideration of the possibility of eliminating borderline infringement of one profession upon another, as exemplified in physician-owned pharmacies and counter-prescribing in establishments dispensing drugs. This topic also called forth discussion of certain unethical practices involving physicians and pharmacists.

Discussion of consumption of drugs with and without professional supervision raised the question of adequacy of distribution of drugs in rural districts, dispensing of drugs by unauthorized personnel in physicians' offices and hospitals and the assumption of professional duties by unregistered nursing personnel and laymen.

Under the consideration of legal factors in drug distribution it was asked, "What concessions with regard to safety must the public be expected to make in order to be supplied in emergencies?" Also, "Is it safe to let the public determine, without professional advice, what the safety factors should be?"

The extent of federal control over the distribution of drugs and the practice of the professions was explored also from the standpoint of its general necessity and from the standpoint of governmental interference with private practice in the health field. The effect of regulations by administrative agencies in the Government and the factors which influence decisions of the courts on health and medical care problems were explored.

In the summary of the discussions it was pointed out that there was a clear consensus that better interprofessional understanding is an immediate and continuing need.

Whether leadership in arriving at a better professional understanding should come from the national organizations representing the medical and allied professions, or whether we must look to local and state organizations of professional groups for a solution of the problems involved, remained an unsettled question, but there was much evidence that those assembled believe that leadership must come from both directions and that interprofessional conferences must be promoted at all levels in order to serve the best interests of all concerned.

The discussions emphasized that the key to adequate interprofessional relations is the individual practitioner in all of the healing arts and that a complete understanding on his or her part of the total problem and the specific interests of each group is an indispensable ingredient in any satisfactory solution.

It was also pointed out that pinpointing faults in the activities of any of the professions does not lead to interprofessional cooperation. The responsibility for improvement of any given situation is mutual. Furthermore, the professions are now confronted with the necessity for moving rapidly in the direction of concerted constructive action.

The discussions led to the definite conclusion that a first step toward better interprofessional relations is a tabulation of existing problems as revealed by the discussions of the day and that it would be well for a continuing committee of the conference to carefully review the transcript of the record and endeavor to establish what the next constructive move shall be.

The conference agreed that a continuing committee representing all of the professions and industry participating should be named and should meet in the near future to determine the next steps. Action along this line is under way.

## February Is Heart Month

FOR many years, February was significant to the average citizen because it is the month in which George Washington and Abraham Lincoln were born. More recently, the American Heart Association, through its community activities has added to the significance of the month by focusing attention on the prevention, alleviation, and cure of heart disease in its many and varied manifestations.

On the front cover of this issue of the JOURNAL the significance of the month of February is portrayed in terms of reverence for the Father of Our Country and the Great Emancipator as well as from the viewpoint of its significance to better community health through the conquest of heart disease.

Just as the founders of our nation united behind George Washington to secure independence and later generations accepted the leadership of Abraham Lincoln to fight for the preservation of the union, we of the present generation, are uniting in our quest for better health. In February, this quest is concentrated upon the conquest of heart disease through the efforts of the American Heart Association which has the support of pharmacists everywhere. Be sure to contact your local Heart Association officers and work with them throughout the year, as well as in the month of February. For the conquest of heart disease is a vital step to better community health.

## Important Council Actions

THE Council of the AMERICAN PHARMACEUTICAL ASSOCIATION met on February 3, 4, and 5 in Washington, D. C., and in addition to taking part in the Interprofessional Conference on February 4, devoted two full days and an evening to consideration of matters of vital importance to the ASSOCIATION and to pharmacy in general.

A more complete account of the deliberations and actions taken will appear in the March issue of THIS JOURNAL.

Among important actions taken by the Council, in addition to approval of the budget for 1954 and hearing reports on the status of the National Formulary, the activities of the laboratory, the library and information services of the ASSOCIATION, as well as the publication program and other important service features, the Council reviewed all of the 1953 Convention resolutions.

The report of the Secretary included the status of action on the various resolutions and led to the following important decisions.

Since the vote of the membership with regard to the time of the Annual Meeting favored a spring meeting, the Council decided to hold the annual conventions of the ASSOCIATION after Easter, each year, in the month of April, if possible, and if Easter should fall too late, then as early in May as possible. This decision does not affect the 1954 Convention. However the 1955 Annual Meeting, which is scheduled to be held in Miami Beach, Florida, will very likely occur in the latter part of April, 1955.

The Council voted to support the N.A.R.D. bill to amend the Federal Narcotic Act so as to give the Commissioner of Narcotics authority to make rulings permitting

*(Continued on page 112)*

# The Strengths of Pharmacy

1953
REMINGTON MEDAL
ADDRESS

by Dr. Hugh C. Muldoon*

**In the second of the three chapters into which we have divided the 1953 Remington Medal Address, Dr. Muldoon discusses the effective and continuing influence of education on pharmaceutical practice and the machinery for facilitating its contributions to the Strengths of Pharmacy.**

## II

AT FIRST, the pharmacists who resisted the transfer of medicine-making from the prescription room to the manufacturing plant, viewed the matter as wholly a personal and a pharmaceutical matter. But something more than that was involved. An industrial age, a mechanized civilization was developing. It soon became apparent that in no field could individuals compete effectively and economically against the large manufacturers' prodigal use of nonhuman energy, their automatic machines, their research organizations, and their specialized labor.

Pharmaceutical manufacturers appeared to have inexhaustible financial resources. They took advantage of every modern medium of communication and transportation to provide good service and rapid delivery. The elegance of the mass-produced medicines, and their economy, could not be denied. The products were of high quality. Pharmacists had to admit that extraordinary care was taken in their manufacture. There could be but one end. Individual and group opposition to the manufacturers abated. Pharmacists adjusted to the new situation.

Any expanding technology tends to depersonalize. Even in selling, machines may displace men. But there can be no robot pharmacies. In the true pharmacy, the professional advice, the professional service, and the professional responsibility of the skilled pharmacist can never be eliminated. The human touch will always be needed. The pharmacist's technical knowledge informs and protects the patient and the physician. The physician needs information concerning the new medicines he prescribes, not only factual information but evaluations and comparisons of the 8,000 prescription products that are now available.

Whether or not he prepares them personally, the pharmacist is responsible for all the products he dispenses. He must have, and he does have, faith in those who make them. So well have the manufacturers served the pharmacist and the physician, and through them the public, that today no one would even consider a return to the old conditions.

*We are proud to list our great pharmaceutical manufacturing industry, vigorous, alert, progressive, as one of the most important strengths of modern pharmacy.*

Industry does more than make medicines. Its interests are broad. It looks to the future. It is not surprising, then, that pharmaceutical education has become one of industry's chief concerns. They know that men are the profession's most important resource. The colleges supply new manpower to the profession each year. It is largely through these college-trained men and women that the manufacturers' products eventually reach the sick room. Now, more than ever, the prescriptionist must be well educated for his work. Industry seeks for itself broadly trained and liberally educated men and women. It needs executives, researchers, production men, and other skilled workers. In the future, more frequently than it has in the past perhaps, industry will utilize the specially trained graduates of our colleges of pharmacy. There will be more of them. They will be better prepared.

### The American Foundation for Pharmaceutical Education

The manufacturers assist education individually and directly, but more often in recent years they have operated through the enormously

* Dean, College of Pharmacy, Duquesne University, Pittsburgh, Pa.

helpful American Foundation for Pharmaceutical Education. *This Foundation is one of the newest and most significant strengths of pharmacy.* Through this organization, manufacturers, wholesalers, and other interested persons and groups have financed projects of inestimable value. They supplied the funds for the recently completed and very costly Pharmaceutical Survey that sought to discover what is right about pharmacy, and what is wrong, and what should be done about it. They continue to subsidize *The American Journal for Pharmaceutical Education*, the American Council on Pharmaceutical Education, and the stimulating annual Conferences for Teachers.

Foundation fellowships and scholarships have made advanced study possible for hundreds of able students who otherwise could not have afforded it. Financial aid has been granted generously to needy undergraduates. Last year alone, the Foundation's scholarship and fellowship expenditures passed the $100,000 mark.

Those who conceived this forward-looking organization, and those who direct and support it deserve, and have, the gratitude and the deep appreciation of the students, the colleges, and of pharmacists everywhere.

## Education

Pharmacy is proud of its 74 accredited colleges, and rightly so. *Our educational system is one of our greatest strengths.* Even so, we are not satisfied with it. I hope we never will be.

Once, apprenticeship or internship played an important part in the training of the pharmacist. It no longer does. Pharmaceutical education is almost wholly delegated to the college. Just now, there is a keen and widespread, and I think, rather wholesome dissatisfaction with our schools and their curriculums. The professional competence of our graduates is not questioned; but many educators and practicing pharmacists, and even disinterested observers, point out that the colleges fail to give their students the well-rounded education to which, as members of a profession, they are entitled. Our critics say we graduate men and women of circumscribed interests, narrow specialists prepared only for living in a compartmented world. We are counseled to broaden our training by including more of those branches of learning that are conducive to culture, specifically the humanities.

If our training is to be preparation for all aspects of living, social, economic, and esthetic, as well as professional, we are not doing our job well. We are aware that specialization in any field, begun too early, is ill-advised. We know that pharmaceutical education is now and always has been specialized and utilitarian. Pharmacists are realists. They demand functional education. They are not interested in learning what they consider to be largely decorative if the professional has to suffer. Their first concern always has been and always should be, the safety of the public.

We know that no one kind of education can serve all the needs of all the people, or even today all the needs of all kinds of pharmacists. We believe that our schools in their four-year course are making competent pharmacists for the retail field as we find it today. Even so, few will deny, I think, that we should give more attention to the pharmacist's nonprofessional learning. His personal life, as well as his professional life, deserves consideration. In college he should complete a well-balanced course of instruction which will include scientific and professional and cultural subjects that will enrich all his living. Such programs have long been offered but they have not been mandatory.

To liberalize our basic training, we are advised to synthesize the vocational and the intellectual, to fuse our scientific and professional knowledge with more of the social sciences and the older humanistic studies that are commonly administered by the college of arts. Everyone will agree to that, I think, at least in principle. Certainly, we want to graduate men and women of culture. But they must be able and safe pharmacists, too; they must be well grounded in the basic sciences; and they should have at least some knowledge of the fundamentals of business. We want them to be good men, and good women, and good citizens.

Beyond that, we should *like* them to have a knowledge of economics and sociology and psychology and philosophy and a modern language or two. We want them to know something of what happened in the world yesterday and how it affects today. Their taste in music and literature and art should be cultivated. Our graduates should be prepared professionally and intellectually and socially for the important work they are to do, and for the dignified position they are to fill in modern society. We want them to enjoy the full respect of the public and of the allied professions. We want them to look across to the doctor, and not up.

That is an ambitious program. By extending our course of study a single year, we can accomplish only a very small part of it. We are not sure we could achieve all our aims even with

much more additional time at our disposal. We do admit, however, that we have carried specialization too far. We do need a broadened curriculum.

But we point out to those who may have a tendency to over-rate the value of an arts college training, that we doubt if even the complete four-year arts curriculum, as it is frequently administered, fits a man much better than does our curriculum for life today in a complex and competitive world that is shaped so largely by science and technology. We do not disparage the arts course. Far from it. We merely point out that the curriculum in pharmacy has unappreciated values.

No one has yet proved that any one group of disciplines is the single and only way of liberating the mind. It is disturbing that so many educators, pharmaceutical and otherwise, in advocating the inclusion of more of the humanistic studies seem to feel that the pharmaceutical curriculum, with its fascinating variety of subject matter, has little or no moral or ethical or cultural value. I recognize no such limitations. The contributions of our curriculum are not wholly physical. Every subject in it, when properly taught, has cultural value.

We learn of the great discoveries in science, of those who made them, and of their effect on society. We learn of the great chemists and physicists and biologists and pharmacists. We even know about Beowulf! We develop the powers of reasoning, as well as understanding and memory. Our students learn to distinguish between facts and judgment. We encourage pride of self and pride of profession, and the development of self-discipline and self-reliance. At the same time we teach cooperation, and personal and group responsibility.

We inculcate sound moral and spiritual and ethical values by discussion and illustration and example. We teach respect for law, and the dignity of work, and the necessity for sincerity and honor and truthfulness in our relations with others. We encourage honesty and industry and accuracy and patience and perseverance. We nourish curiosity and initiative, creative power in thinking, and intellectual courage. We endeavor to develop sound attitudes and insight as well as professional skills. We are concerned not only with what the student learns, but also with the attitudes he develops as he learns. We try to inspire as well as to teach. In some scholars, at least, we kindle a love of learning.

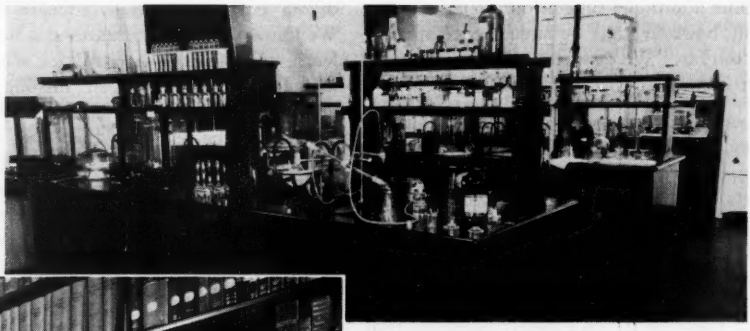
We need not be too discouraged with the results of our current efforts to educate pharmacists. We know that our graduates still have much to learn. But their college training is only the first and formal part of their lifelong continuing education. We believe that our young pharmacists are better fitted than ever before for a satisfying life. But that isn't saying that we are satisfied with our product. It can be improved. We will be among the first to affirm that additional formal instruction will increase the actual and potential value of the pharmacist to society.

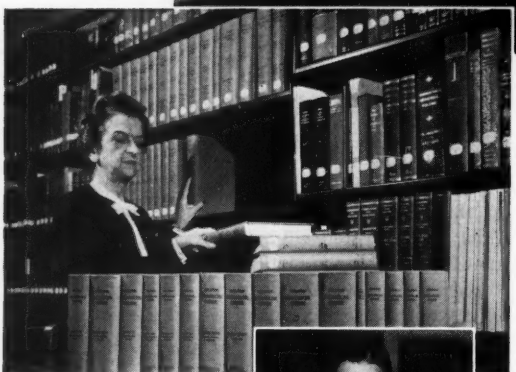
Some academically adventurous colleges of pharmacy already have in operation minimum five- and six-year programs. The question of extending the basic training in all colleges from four to five years is now under active consideration. Judging by the strongly affirmative votes on the question by our great national associations at their 1953 conventions, it is safe to say, I think, that the step will be taken in the not distant future. Many practicing pharmacists favor the change. Many others do not. Both groups offer strong reasons in support of their positions. If we do add a year, pharmacists must not expect immediate and spectacular results. Education is a long and slow and sometimes tedious process. It lacks drama.

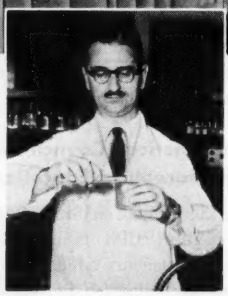
## The American Council for Pharmaceutical Education

Extent of curriculum, of itself, means little. It is content that is important. Sometimes we seem to measure education only by length, rather than by quality or substance. Our present course of study has not been lengthened since 1932, but everyone interested knows that there have been many significant advances in its administration and in its content. The Charters' Report and the Pharmaceutical Survey stimulated improvement. For many years the powerful American Association of Colleges of Pharmacy, and more recently, the American Council on Pharmaceutical Education, have had enormous influence in promoting the development of our colleges, physically, academically, and professionally. The establishment of the Council was a milestone in modern pharmaceutical education. University administrators and state boards of pharmacy rely upon its judgment and accept its decisions. The studies made by the Council in evaluating our colleges have benefited notably not only the individual college and its parent institution, but all pharmacy. And all pharmacy is grateful.

*(Continued on page 116)*







**PRESCRIPTION** Compounding and dispensing constitute the lifeblood of the pharmacist's professional service. For more than a century the American Pharmaceutical Association has kept the profession informed of progress in the art and science of pharmacy through its publications.

The Division of Prescription Practice at A.Ph.A. Headquarters, where Library, Laboratory and Consultants are available, provides continuous and effective aid to practicing pharmacists. In the following pages we present valuable developments in formulation and compounding techniques.

# Compounding Aids

## AND FORMULA MODIFICATIONS

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# AN IMPROVED Cacao Syrup

by George Narinian†
L. M. Ohmart†
M. J. Stoklosa†

CACAO has followed a wave of increasing and then decreasing popularity for the masking of unpleasant tastes because of the instability of the official syrup. Consequently, the full possibilities of a chocolate-flavored vehicle have not been realized.

Cacao syrup prepared by the official recipe exhibits a tendency to ferment readily and to increase in viscosity upon standing for several days to such an extent that it cannot be poured from the bottles commonly used in dispensing prescriptions. Such a syrup has limitations in pharmaceutical compounding, especially when it is to be used as a suspending medium for dry powders, which tend of themselves to increase the viscosity of the preparation.

This investigation was undertaken in an attempt to formulate an improved cacao syrup for use as a pharmaceutical vehicle. A comparison of the physical properties of the official and commercial syrups indicated some differences in their formulas. A review (1) of the commercial methods of preparation seemed to indicate that perhaps the major cause of the unsatisfactory nature of the official syrup was the use of cacao, commercially known as breakfast cocoa (2), rather than that known as cocoa (2), which contains less cocoa butter. When cacao which contains the upper limit of 22 per cent of fat allowed by the Pharmacopeia is used in the preparation of cacao syrup, the fat tends to coalesce and so causes the gradual increase in viscosity that occurs in the official product. That this tendency is not evidenced in commercial samples of chocolate syrup (1) is attributed to the use of that form of cacao known in commerce as cocoa which usually contains close to the lower limit of 10 per cent of fat allowable.

## Experimental

A series of six samples of cacao syrup was prepared according to the formulas given in Table I. All the syrups were prepared in the following manner. The sucrose and the cocoa were mixed intimately, and to this mixture a solution of the glucose, glycerin, sodium chloride, vanillin, and sodium benzoate (where included in the formula) in 325 cc. of hot distilled water was gradually added. The entire mixture was brought to a boil and was maintained at boiling temperature for three minutes. The product was then allowed to cool to room temperature, the vanilla tincture (where included in the formula) added, and the product was brought to volume with distilled water.

Commercial cocoa was used in all of the formulations. The sample used in this study contained 10.2 per cent of nonvolatile, ether-soluble extractive. The intimate mixing of the sucrose and the cocoa eliminated the tendency of the cocoa to lump when it is mixed with water. Sample *1* represented a basic formula used in the preparation of some commercial chocolate syrups. Gelatin, which is used in the official recipe for cacao syrup to aid in holding the insoluble portion of the cocoa in suspension, was omitted in all of the samples because it was felt that its presence contributed to the instability of the product. Glucose was included in five of the formulas since it tends to increase the viscosity of the preparation and to improve the natural flavor of the cacao. Sodium chloride was added as a flavor adjunct in all of the formulas except that of Sample *1*. Glycerin was used in some of the samples in an attempt to determine if it would prevent the syrup from clinging to utensils used for measuring it. Since vanilla tincture is a potentially variable flavor adjunct, it was replaced by vanillin in Samples *5* and *6*. Sodium benzoate was used as a preservative in Sample *6*.

*(Continued on Page 98)*

Presented before the Section on Practical Pharmacy, A.PH.A. Convention, Salt Lake City, August, 1953.

* Abstracted from a thesis submitted to the Graduate Council of the Massachusetts College of Pharmacy by George Narinian in partial fulfillment of the requirements for the degree of Master of Science in Pharmacy.

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TABLE I.—SAMPLES OF CACAO SYRUP

| | Sample | | | | | |
|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| Cocoa | 120 | 180 | 180 | 180 | 180 | 180 |
| Sucrose | 420 | 635 | 635 | 650 | 635 | 600 |
| Glucose | 120 | 180 | 120 | ... | 90 | 180 |
| Glycerin | ... | ... | 50 | 75 | 75 | 50 |
| Sodium chloride | ... | 3 | 2 | 2 | 2 | 2 |
| Vanilla tincture | 50 | 50 | 50 | 50 | ... | ... |
| Vanillin | ... | ... | ... | ... | 0.2 | 0.2 |
| Sodium benzoate | ... | ... | ... | ... | ... | 1 |
| Distilled water, a sufficient quantity, to make | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 |

The six formulations were shelf tested for stability and evaluated as suspending media for selected insoluble powders. The effect of dilution with water and with simple syrup on the stability, viscosity, and flavor of the samples was studied. Finally, the flavor of the cacao syrups was evaluated by a taste panel consisting of ten persons.

The following procedure was used for shelf testing. Samples of 100 cc., stored in four-ounce prescription bottles, were kept at different temperatures: one at room temperature, another at 0°, and a third at 37°. The samples were examined daily for one week and after that, weekly during a period of one month. The results of these tests are shown in Table II.

TABLE II.—RESULTS OF STABILITY TESTS

| Sample | Storage at Room Temperature | Storage at 0° C. | Storage at 37° C. |
|---|---|---|---|
| *1* | *C* | *C* | *C* |
| *2* | *C* | *C* | *B* |
| *3* | *C* | *C* | *B* |
| *4* | *C* | *B* | *C* |
| *5* | *C* | *C* | *B* |
| *6* | *A* | *B* | *A* |

*A*—satisfactory; showed no significant change in viscosity, no separation into layers, and no evidence of fermentation during the observation period.
*B*—satisfactory; showed a slight increase in viscosity, but could be poured, and exhibited no evidence of fermentation during the observation period.
*C*—unsatisfactory; thickened so that it could not be poured, separated into layers, or showed signs of fermentation at some time during the observation period.

Since Sample *6* was the only one that was satisfactory at the end of the observation period, it was further subjected to shelf testing, under the same conditions, for six months. At the end of that time, no fermentation or mold growth was evidenced and no increased thickening was apparent.

Each formula was tested for separation, under conditions similar to those that might exist commonly in extemporaneous compounding. Two dilutions were made with distilled water and with simple syrup: the first, in ratios of three parts of cacao syrup to one part of diluent; the second, of equal parts of each. Only in the case of Sample *6* did dilution with distilled water up to 25 per cent and with simple syrup up to 50 per cent not materially affect the stability of the product when it was stored at room temperature for a period of three months.

All of the formulas were also tested for their ability to act as suspending vehicles for two common medications: acetylsalicylic acid and sulfadiazine, of each of which 8.75 Gm. was incorporated in 100 cc. of the formulas by trituration. The suspensions made with Sample *1* showed a slight sedimentation, and fermentation was evident in them upon standing for five to six weeks. Good suspensions were obtained with all of the other samples, but the suspensions made with


## Authors' Summary

**Deviations in the formulas of six samples of cacao syrup from the formula of the official product included a change in the cacao used, the introduction of different flavor adjuncts, the use of glucose, the inclusion of glycerin, and the addition of a preservative.**

**Changes were observed in the samples when they were stored under various conditions, when they were used for suspending dry medications, and when they were diluted with other liquids.**

**An improved formula is suggested for further investigation and possible adoption.**

Sample *6* were the only ones that did not thicken excessively upon standing.

In the opinion of the taste panel the flavor of Samples *5* and *6* was equal to or better than that of all of the other formulas. The flavor of Sample *1* was described as inferior.

## Conclusions

It is highly probable that dilution of Sample *6* cacao syrup with other syrups would produce the same satisfactory result obtained on dilution with simple syrup. The product will suspend a relatively large amount of dry medicament and can still be poured from dispensing containers. Inclusion of glycerin in the formula prevented difficulty in the removal of the vehicle from the medication spoon. Sodium chloride and vanillin improved the flavor of the preparation. It is probable that sodium benzoate contributed to the stability of the product.

The following formula is suggested for further investigation and possible adoption. Should the suggested formula be considered for official adoption, it is further recommended that the upper limit of nonvolatile, ether-soluble extractive in cacao be lowered.

*Cacao Syrup*

| | |
|---|---|
| Cacao | 180.0 |
| Sucrose | 600.0 |
| Glucose | 180.0 |
| Glycerin | 50.0 |
| Sodium chloride | 2.0 |
| Vanillin | 0.2 |
| Sodium benzoate | 1.0 |
| Distilled water, a sufficient quantity, to make | 1,000.0 |

Mix the sucrose and the cacao intimately and to this mixture gradually add a solution of the glucose, glycerin, sodium chloride, vanillin, and sodium benzoate in 325 cc. of hot distilled water. Bring the entire mixture to a boil and maintain at boiling temperature for three minutes. Allow the product to cool to room temperature, and add sufficient distilled water to make the product measure 1,000 cc.

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(1) Kempf, N., Head of Research Department, Walter Baker and Company, Inc., Dorchester, Mass., personal communication.

(2) Cacao Products, Definition and Standards of Identity, *Federal Register*, **9**, 243(1944), pp. 14,329–14,337.

# MODIFICATIONS IN THE FORMULA OF Wild Cherry Syrup

by **Wm. B. Swafford*** **W. Lewis Nobles†**

BAUER AND WASSON (1) noted that alcohol, glycerin, and propylene glycol were often used in preparations designed for diabetic use without due regard for their glycogenetic properties. Preparations that are suitable for use by diabetics must be free from significant quantities of such glycogenetic substances. Without the use of alcohol and/or glycerin, however, their palatability often becomes a problem.

Interest in this area was stimulated by two motives: (*a*) during World War II only a limited supply of sucrose and glycerin was available for pharmaceutical use, (*b*) the successful substitution of nonglycogenetic substances for both sucrose and glycerin in various pharmaceuticals would provide for the possible "safe" administration of such preparations to diabetic persons.

This investigation was undertaken in an attempt to provide a substitute for both sucrose and glycerin in some of the official preparations of pharmacy, particularly wild cherry syrup.

In each of the modified formulas the preparative procedure was very similar to that employed for the official product. Details of the procedure are as follows: moisten the wild cherry bark with 50 cc. of water, pack in a cylindrical percolator, cover with water, and allow to macerate for one hour. Percolate rapidly, using more water as menstruum as necessary to collect 200

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cc. of percolate. Filter, if necessary. To this filtrate add the mucilage of sodium alginate or methylcellulose previously prepared by dissolving the requisite quantities of saccharin sodium, the preservative, and the suspending agent in 300 cc. of water.

## Experimental

The official formula for wild cherry syrup is:

| | |
|---|---|
| Wild cherry bark, in coarse powder. | 150 |
| Glycerin | 150 |
| Sucrose | 675 |
| Alcohol | 20 |
| Water, *q. s.* | 1,000 |

Six variations of the official syrup were tried. Two of these involved the use of methylcellulose; the remainder contained sodium alginate (Table I).

TABLE I.—EXPERIMENTAL FORMUMAS
(Quantities in Gm. or cc.)

| | Formula No. | | | | | |
|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| Wild cherry bark | 75 | 75 | 75 | 75 | 75 | 75 |
| Sodium alginate | .. | .. | 5 | 2.5 | 2.5 | 1.25 |
| Saccharin sodium | 0.5 | 0.5 | 1 | 0.5 | 1 | 1 |
| Methylparaben | .. | .. | 0.5 | 0.5 | 0.5 | 0.5 |
| Methylcellulose, 100 c. p. s. | 5 | .. | .. | .. | .. | .. |
| Methylce.lulose, 4,000 c. p. s. | .. | 2 | .. | .. | .. | .. |

In each case involving the use of methylcellulose, the observation of Pauer and Wasson (1) that fluidextract of wild cherry is incompatible with a solution containing methylcellulose was extended to cover the aqueous extract used in the preparation of the official syrup. Their general observation that the mixing of fluidextracts with solutions containing methylcellulose produces an incompatibility due to the vegetable extract being thrown out of alcoholic solution by the water does not apply to this particular case since this extractive does not contain any alcohol. The common test reagents (ferric chloride, potassium cyanide, and calcium hydroxide solutions) failed to denote the presence of tannin in the precipitate which was previously removed by filtration. The presence of tannin in the filtrate was demonstrated by a positive test with these reagents. Obviously the precipitate is not due to the presence of tannin in the fluidextract. It appears probable that the precipitation may be caused by the insolubilization of the methylcellulose by certain hydroxy acids, found in the wild cherry bark extract, which may react with it to form an insoluble product (2).


## Authors' Summary

**Three formulas comparable in many respects to Wild Cherry Syrup U. S. P. XIV have been developed. These formulas, using sodium alginate and saccharin sodium, are less expensive to prepare than the official syrup, are practically devoid of glycogenetic substances, and have a pleasant taste.**


In view of this experience with methylcellulose, attention was diverted to the use of sodium alginate. No incompatibility was evidenced in preparations using Formulas 3, 4, 5, or 6. Formula 4, while yielding a clear preparation, was not acceptable because the taste was not sweet enough in the opinion of the authors.

Since it has been demonstrated many times that a transparent preparation is not necessarily conducive to prescription compounding compatibility, representative prescriptions containing wild cherry syrup were prepared with both the official syrup and Formulas 3, 5, and 6. The following prescriptions were compounded:

| | | |
|---|---|---|
| 1. | Potassium guaiacolsulfonate. .. | 9.0 |
| | Wild cherry syrup, *q. s.* | 120.0 |
| 2. | Sodium citrate | ʒ iv |
| | Sodium bromide | ʒ iii |
| | Wild cherry syrup | ℥ i |
| | Distilled water, *q. s.* | ʒ iii |
| 3. | Antipyrine. | 4.0 |
| | Paregoric | 30.0 |
| | Tr. belladonna | 4.0 |
| | Wild cherry syrup, *q. s.* | 90.0 |
| 4. | Ammonium chloride | ʒ i |
| | Potassium guaiacolsulfonate | ʒ i |
| | Wild cherry syrup, *q. s.* | ℥ iii |
| 5. | Acetanilid | ʒ i |
| | Caffeine citrate | gr. iv |
| | Aromatic elixir | ℥ ii |
| | Wild cherry syrup, *q. s.* | ℥ iii |
| 6. | Ammonium chloride | 2.0 |
| | Terpin hydrate | 1.0 |
| | Wild cherry syrup | 15.0 |
| | Distilled water, *q. s.* | 30.0 |

After observation for twelve days at room temperature, the appearance of each group of these prescriptions, using the official syrup as control for the modified formulas, was essentially the same. Generally, the modified formulas demonstrated the same compatibilities and incompatibilities as does the official syrup. Any of these preparations could be dispensed satisfactorily.

After standing at room temperature for a period of approximately one month, each of the modified formulas exhibited cloudiness, which has become more marked with the passage of time. Although this would deter the consideration of any of these modified formulas as being suitable substitutes for the official syrup, it does not preclude the use of any of them in extemporaneous compounding where a preparation substantially free of glycogenetic substances was desired.


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(2) "The New Methocel," The Dow Chemical Company, 1949, p. 56.


# A Simplified Formula for Aromatic Elixir


by Robert E. Saute*
C. O. Lee†


THE FORMULA and procedure for the preparation of aromatic elixir, U. S. P. has remained unchanged for nearly a half century. It is not a particularly difficult product to make, but is time consuming because, being syrupy and viscous, it filters slowly. Even when prepared and filtered with care there is some loss of alcohol by evaporation. For this reason the final product is less in volume than should be expected from simple filtration, low in content of alcohol, and too sweet.

In the days when pharmacists regularly prepared this product many of them submitted, what seemed to them to be improved formulas and procedures for making it. Whatever merits many of these formulas may have had none was ever made official in the *Pharmacopeia*. Several of the recently proposed formulas appear to be improvements over the present official product and procedure.

## Historical

Those who have published reports on the subject of aromatic elixir complain mainly about its slow rate of filtering and the suggestions that were made at improving the official formula were directed chiefly at shortening the filtering time. To accomplish this, improvements were offered in the procedure for making it, but the gain in the time factor was frequently offset by the loss in the quality of the finished product.

Maddox (1) in 1880 was among the first to suggest the use of magnesium carbonate as a filtering aid. Moore (2), Sass (3), and Krantz and Carr (4) also suggested its use for this purpose. In 1896, Ott (5) proposed the use of precipitated calcium phosphate as the filtering aid in preparing simple elixir. Toplis (6) in 1906, mixed the compound spirit of orange with talc, transferred the mixture to a filter, and passed the alcohol and water solution through the talc mixture. The sugar was then dissolved in the filtrate.

In 1911 Dunn (7) modified the idea of Toplis by dissolving the compound spirit of orange in the alcohol, mixing this solution with kaolin and filtering it. Water was added to the filtrate and sugar was dissolved in this solution and the whole filtered through cotton. In 1948 Sperandio and Lee (8) mixed the compound orange spirit with calcium phosphate in a mortar and transferred the mixture to a filter. The paper had

*(Continued on next page)*

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† Professor of Pharmacy, Purdue University, School of Pharmacy.

been made thoroughly wet with a 25 per cent solution of alcohol. Next 650 cc. of a 25 per cent alcohol solution was passed through the filter. Syrup was then added to the filtrate and mixed well.

Ewing, Krone, and White (9) criticized the Sperandio and Lee formula on the ground that its alcohol content was below that required for aromatic elixir U. S. P. They maintained that the formula in question could be made to meet the official standards by reducing the amount of calcium phosphate from 50 Gm. to 35 Gm. per 1,000 cc. and by passing enough of the 25 per cent alcohol solution through the filter to make 650 cc. of filtrate rather than as directed in the original formula. Sugar was also substituted for syrup.

In 1922 Jones (10) suggested that the difficulties encountered in obtaining a clear aromatic elixir could be solved by using terpeneless oils. The findings of later workers substantiated Jones' claim. In 1950 MonteBovi (11) suggested the simplest of all the formulas offered for making aromatic elixir. He solubilized the oils in the compound spirit of orange by means of Tween 20. This removed the need for filtering the elixir and hence minimized the loss of alcohol by evaporation. However, upon aging, the product developed a disagreeable taste which rendered it useless.

This short review does not begin to reveal the interest and effort which, through the years, have been centered on this one useful pharmaceutical preparation. The authors of this paper believe that the need for an improved aromatic elixir still exists, and offer a formula which is easy to make and which yields a product that is equal to or better than the present official elixir in flavor, clarity, and stability.

The volatile oils in the compound orange spirit were solubilized by the addition of nearly 9 per cent by volume of a Pluronic[1] as indicated by the following formula:

| | |
|---|---|
| Orange oil | 20.0 |
| Lemon oil | 5.0 |
| Coriander oil | 2.0 |
| Anise oil | 0.5 |
| Pluronic | 2.7 |

Several of the Pluronics were used to prepare this oil mixture. The two which proved to be the best contained Pluronics L-44 and L-64. Elixirs were prepared with these two oil mixtures as indicated by the following formula:

[1] Polyoxyalkalene nonionic solubilizers manufactured by Wyandotte Chemical Corporation, Wyandotte, Mich.

*Aromatic Elixir L-44*

| | |
|---|---|
| Syrup, U. S. P. | 375.0 |
| Alcohol U. S. P. | 240.0 |
| Oil Mixture L-44 | 0.6 |
| Distilled water, to make | 1,000.0 |

**Procedure.**—Mix the alcohol and the oil mixture and stir for about three minutes. Next add the syrup slowly with constant stirring. Finally add the water in the same manner. Shake or stir the elixir for about five minutes.

*Aromatic Elixir L-64* differs only in the Pluronic used.

These two elixir formulas were prepared and compared as to taste, clarity, specific gravity, and *p*H with four other aromatic elixirs, namely, the aromatic elixir U. S. P., and those of Ewing, *et al.*, Sperandio and Lee, and MonteBovi (*loc. cit.*). As to their physical properties, they all showed the same transmittancy of light when tested by the nefluorophotometer. The specific gravity and *p*H of these six formulas are tabulated below:

| Formula | Sp. gr. | *p*H |
|---|---|---|
| U. S. P. XIV | 1.126 | 6.20 |
| L-44 | 1.104 | 6.60 |
| Ewing, *et al.* | 1.111 | 6.20 |
| Sperandio-Lee | 1.094 | 7.30 |
| MonteBovi | 1.610 | 5.75 |
| L-64 | 1.104 | 6.20 |

The elixirs were shelved at room temperature for fifty days and re-examined and tested again. No appreciable changes were discernible except that the flavor of a few of the elixirs had improved. However, since the flavors are hard for the amateur to evaluate no claims can be made concerning taste, except that most of the several elixirs studied had about the same taste quality. One, that of MonteBovi, had a bad odor and was nauseating when taken.

Pluronics are referred to as new polyoxyalkylene nonionic surfactants. They are regarded as being useful in the field of cosmetics. They are not official in either the *Pharmacopeia* or the *National Formulary* and, therefore, are not a part of any of the official formulas. They have, however, a low order of toxicity and appear to cause neither eye nor skin irritation and they have no skin sensitizing properties. They are reported to have much less taste than other nonionics, are described as being bland, not unpleasant, or having no taste at all (12). Only time will tell whether these apparently harmless solubilizing agents will find acceptable use in pharmacy.

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# A STUDY OF *Propylene Glycol* IN SOME ORAL PHARMACEUTICALS


by Himatlal R. Mehta*
Fred G. Drommond*


THE USE of propylene glycol in pharmaceutical preparations has attracted considerable attention during recent years since experimental evidence has indicated that the compound is relatively nontoxic and free from harmful effects. Propylene glycol was first suggested as a vehicle for medicinal purposes in 1931 (1). Brown (2) reported some of the pharmaceutical solvent characteristics of this glycol in 1935. In 1943, the National Formulary Committee authorized the replacement of glycerin with propylene glycol in a number of its official preparations (3). The solvent and pharmaceutical characteristics of propylene glycol have been reviewed by other investigators (4–6).

Since propylene glycol can be used internally in addition to its solvent and stabilizing properties, it is unique among the glycols and of tremendous interest to the pharmacy profession. The possible value of this solvent as a vehicle for oral preparations that contain constituents usually unstable in aqueous solutions was considered worthy of investigation. A few examples of the following types of medicaments were considered: (*a*) members of the vitamin B complex; (*b*) analgesic antipyretics; (*c*) hypnotics and sedatives; and (*c*) laxatives. For a substance to be a suitable vehicle, the active medicaments must be relatively stable in the vehicle. A study was therefore, made to determine this suitability for some of the medicinal agents.

Oral liquid dosage forms are desirable from the pediatric and geriatric points of view, but at the same time they should be fairly pleasant to the taste. Propylene glycol has a slight bitter aftertaste and products that contain this solvent often meet with consumer resistance for this reason. It was decided that if this study were to have any practical value, the taste of propylene glycol must be masked satisfactorily to meet consumer acceptance.

## Experimental

### I. Pharmaceutical Study

**General Procedure.**—The selected medicinal agents were dissolved in propylene glycol, stored in sealed amber containers at 25°, and either assayed or observed for stability after various periods of storage. As far as solubilities permitted, the maximum amount of the medicament was dissolved in 100 cc. of the propylene glycol. The assays were carried out immediately after preparation and then at various intervals of time for a total period of storage as indicated in Table I.

**Medicaments Selected.**—Some members of the vitamin B complex are rather unstable in aqueous solution. The formation of a liquid oral preparation of thiamine hydrochloride, nicotinic acid, calcium pantothenate, and pyridoxine hydrochloride in propylene glycol was studied. Individual stock solutions of each vitamin as well as a multivitamin solution were prepared in propylene glycol.

Acetylsalicylic acid is one of the most widely used analgesic antipyretics. However, it is

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not stable in the presence of moisture, and aqueous solutions of the drug are not suitable for oral use. The possibility of using propylene glycol as a solvent for aspirin seemed therefore worthy of consideration. Antipyrine and aminopyrine were studied also, but acetophenetidin was examined only in a combination with aspirin and caffeine.

Chloral hydrate was one of the first synthetic hypnotics; it has been replaced largely by the barbiturates, but, for some patients with insomnia of psychic origin, it may still be the drug of choice. Chloral hydrate offers some problems when solutions are attempted. Since propylene glycol has stabilizing solvent properties, it was decided to investigate the stability of chloral hydrate in this solvent. To study the stability of a barbiturate as well as a sodium salt in propylene glycol, phenobarbital and barbital sodium were selected as typical examples.

Since irritant cathartics are still used by the laity, a brief study was made to determine if phenolphthalein and extracts or fluidextracts of cascara sagrada, rhubarb, and senna could be dispensed in a liquid form in propylene glycol. Phenolphthalein is almost insoluble in water but an average dose of 60 mg. could be dissolved in 5 cc. of propylene glycol after standing at room temperature for twenty-four hours.

**Assay Procedures.**—Standard colorimetric methods were used for the analysis of thiamine and pyridoxine. Nicotinic acid was assayed by the official U. S. P. titration method. Since no satisfactory chemical or colorimetric method was available for the determination of pantothenic acid, a colorimetric procedure was attempted in which the calcium pantothenate was hydrolyzed to *beta*-alanine by the addition of alkali, and then reacted with sodium *beta*-naphthoquinone sulfonate to yield a colored reaction-product. When compared with a standard calcium pantothenate solution treated in the same manner, favorable results were obtained; but this method did not give satisfactory results for the determination of calcium pantothenate in the multivitamin solution.

Acetylsalicylic acid was assayed by the customary double titration method, and chloral hydrate by the U. S. P. method.

**Results.**—The stability of some of the medicaments studied are summarized in Table I. The members of the vitamin B complex that were studied appeared to be reasonably stable in propylene glycol, although a longer storage period would be required before the proper evaluation of this solvent could be determined Acetylsalicylic acid and chloral hydrate appeared to be very stable in propylene glycol during a sixty-day storage period. The other drugs upon examination showed no signs of deterioration or incompatibility with propylene glycol.

## II. Organoleptic Study

**Method.**—Although it is fairly well known that propylene glycol imparts a bitter aftertaste to preparations in which it is used, no organoleptic studies have been reported in which attempts were made to mask the taste of this liquid vehicle. Various studies have been made to evaluate the masking efficiency of various vehicles for distasteful drugs, but no organoleptic studies have been reported for the effective masking of a distasteful liquid vehicle *per se* which might have special pharmaceutical value. Therefore, an ac-

TABLE I.—RESULTS OF STABILITY STUDIES OF MEDICAMENTS IN PROPYLENE GLYCOL STORED AT 25°C.

| Medicament | Concentration, Gm./100 cc. | Days of storage | Per Cent Found | Analysis Method |
|---|---|---|---|---|
| Vitamin B Complex Member | | | | |
| Pyridoxine HCl | 1.0 | 75 | 99.4 | Colorimetric |
| Thiamine HCl | 1.0 | 75 | 94.2 | Colorimetric |
| Nicotinic acid | 0.5 | 75 | 99.6 | U. S. P. titration |
| Calcium pantothenate | 1.0 | 75 | 97.9 | Developed colorimetric |
| Analgesic Antipyretics | | | | |
| Acetylsalicylic acid | 6.0 | 60 | 99.78 | Double titration |
| Aminopyrine | 15.0 | 60 | ... | ..... |
| Antipyrine | 15.0 | 60 | ... | ..... |
| Hypnotics and Sedatives | | | | |
| Choloral hydrate | 20.0 | 60 | 99.84 | U. S. P. titration |
| Phenobarbital | 3.0 | 60 | ... | ..... |
| Barbital sodium | 3.0 | 60 | ... | ..... |
| Laxative | | | | |
| Phenolphthalein | 1.2 | 30 | ... | ..... |

ceptable method had to be developed whereby the taste-acceptability of propylene glycol could be determined by organoleptic procedures without the use of a threshold method.

**Procedure.**—Six flavoring agents were selected for the preliminary study: oils of anise, clove, cinnamon, orange, sassafras, and methyl salicylate. A series of flavor concentrations in propylene glycol were prepared and the panel selected 0.3 cc./100 cc. as the optimum concentration for the flavor. This concentration was used throughout the study. As the preliminary study indicated that a mixture of two flavors appeared to be more acceptable than a single flavor, a series of 15 different flavor-mixtures as indicated in Table II, were prepared for the final evaluation.

A panel of 15 undergraduate students served as the subjects. Each panel member was instructed as to the procedure for organoleptic testing. Propylene glycol was used as the control and was assigned a numerical grade of zero. After testing each sample, the panel member expressed a numerical value for each sample according to the word value assigned to a numerical range as follows:

| Word Value | Numerical Range |
|---|---|
| Very good | 100–80 |
| Good | 80–60 |
| Fair | 60–40 |
| Poor | 40–20 |
| Very poor | 20–0 |

Only five samples were tested at one time; tests were repeated on alternate days until all samples and flavors had been evaluated.

**Results.**—The results were interpreted statistically and are summarized in Table II. In this statistical analysis the "null hypothesis" was used primarily. The assumption was made that all samples were drawn from the same universe. The flavor-mixtures are arranged in the descending order of their preference according to the significance ratio values. Perhaps the most preferred and the least preferred flavor-mixtures can be distinguished without commitment as to which is best.

***(Continued on page 122)***

TABLE II.—EFFECTIVENESS OF FLAVOR-MIXTURES IN MASKING PROPYLENE GLYCOL AFTERTASTE.

| No. of Flavor-Mixture | Components of Flavor-Mixture (*a*) | No. of Subjects Used (*b*) | Mean for Each Set $M_1$, $M_2$... (*c*) | Over-all Mean $M$ (*d*) | Significance Ratio (*e*) |
|---|---|---|---|---|---|
| 1 | Methyl salicylate<br>Anise oil | 15 | 77 | 61.8 | +2.81 |
| 2 | Peppermint oil<br>Anise oil | 15 | 72 | 61.8 | +1.88 |
| 3 | Sassafras oil<br>Anise oil | 15 | 71 | 61.8 | +1.70 |
| 4 | Orange oil<br>Anise oil | 15 | 70 | 61.8 | +1.51 |
| 5 | Lemon oil<br>Anise oil | 15 | 70 | 61.8 | +1.51 |
| 6 | Peppermint oil<br>Methyl salicylate | 15 | 63 | 61.8 | +0.22 |
| 7 | Spearmint oil<br>Methyl salicylate | 15 | 63 | 61.8 | +0.22 |
| 8 | Orange oil<br>Glycyrrhiza syrup | 15 | 61 | 61.8 | −0.15 |
| 9 | Orange oil<br>Cinnamon oil | 15 | 60 | 61.8 | −0.33 |
| 10 | Lemon oil<br>Methyl salicylate | 15 | 60 | 61.8 | −0.33 |
| 11 | Cinnamon oil<br>Methyl salicylate | 15 | 60 | 61.8 | −0.33 |
| 12 | Anise oil<br>Cinnamon oil | 15 | 55 | 61.8 | −1.26 |
| 13 | Orange oil<br>Cherry syrup | 15 | 52 | 61.8 | −1.81 |
| 14 | Peppermint oil<br>Orange oil | 15 | 49 | 61.8 | −2.37 |
| 15 | Methyl salicylate<br>Orange oil | 15 | 44 | 61.8 | −3.25 |

*a*—The flavor-mixture was composed of equal parts of each component and the test samples contained 0.3 cc. of the mixture/100 cc. propylene glycol.
*b*—The same panel members were used throughout the experiment.
*c*—Calculated by adding the grades for the particular flavor-mixture and dividing by 15.
*d*—Added all means in *c* and divided by 15.
*e*—Calculated by using the formula, $(M_1 - M)/\hat{O}_M$, $(M_2 - M)/\hat{O}_M$, etc.

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**FROM THE SECRETARY'S DIARY FOR JANUARY, 1954**

**4th** Already three days of the new year have come and gone, this being the first workday. And now all the new files and records and books to be organized for 1954 and care to be taken that the habit of writing 1953 does not extend to checks and other legal and official documents.

**5th** Much of today reviewing the proposed N.A.R.D. bill to make prescribing of certain codeine-containing drugs legal by telephone. A succession of conferences with Chairman Schaefer of the Committee on Legislation, George Frates, the Washington N.A.R.D. representative, Commissioner Anslinger, and Mr. Tennyson, his chief legal adviser, on the wording and extent of coverage of this proposed legislation.

**7th** Today listening to President Eisenhower's State of the Union address to Congress and wondering whether the comprehensive program advocated by the President may not strike many snags in the House and Senate in this election year.

**9th** Yesterday and today entertaining Messrs. Hayman, Dickson, and Zeisig of the Board of Canvassers and their associates who came to open and count more than 6,300 ballots sent in by mail in the annual election of officers and members of the Council of the A.PH.A.

**12th** Early this morning on the way to Boston for a meeting of the local convention committee shortly after noon and to take part in a panel discussion on pharmaceutical affairs sponsored by the Alumni Association of the Massachusetts College of Pharmacy. A splendid attendance considering the stormy weather. Greatly appreciated the opportunity to discuss convention program details with Sam Best, co-chairman of the General Convention Committee, and Sam Silverman, who will function as secretary. Greatly regret to note that Martin Adamo is hospitalized and therefore unable to take part in the early deliberations of the Convention Committee as co-chairman. Everybody expressed the hope that he may soon be on the job again.

**16th** Yesterday and today attending meetings of the American Council on Education at the Mayflower Hotel. These meetings constituted a workshop for the review of current legislation and administrative actions affecting education. Enjoying the give and take between delegates from many important national groups holding membership in the Council. Glad also to have the opportunity to confer with Secretary Richard A. Deno of the A.A.C.P. on many matters of mutual interest.

**20th** Late last night arriving at the Statler in New York and at 7:30 this morning meeting Treasurer Schaefer for discussion of a number of important financial problems, which must be referred to the Committee on Finance and the Council at its meeting early in February. Later in the morning to Trenton, N. J., to give a luncheon address as a part of the ceremony incident to the dedication of the New Jersey Pharmaceutical Association's new building. The occasion was graced by the newly inaugurated Governor of the State and his Attorney General.

**25th** Now giving much time and thought to completion of the budget figures for 1954 for submission to the Council at the coming meeting. Also engrossed in the program of making International Pharmacopoeial Drug Standards available to members of American compendia committees and others interested.

**27th** Greatly regret the necessity for missing our first meeting of the American Council on Pharmaceutical Education in nearly ten years, but pressure of duties at the home office in connection with the coming A.PH.A. Council meetings and the Interprofessional Conference, scheduled for February 4, leave no alternative.

**28th** Today attending hearings before the House Committee on Inter-State and Foreign Commerce on the Eisenhower health program and finding A.M.A. representatives considerably on the defensive even though they let it be known that they favor the Eisenhower program, but asked for additional time to determine what shall be their attitude on the re-insurance program recommended for making Blue Cross and Blue Shield plans more equitable for those whose families are stricken with serious and expensive illnesses. It appears as though Chairman Wolverton of the House Committee is needling A.M.A. representatives to produce positive plans as alternatives to those suggested by the administration .

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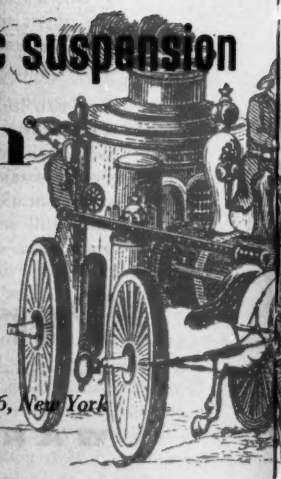

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**Straight From Headquarters**

• • • • • • • • • • • • • • *from page 92*

oral prescriptions for codeine-containing preparations, which are not habit forming, but which contain more than the exempt quantity of codeine now provided in the law.

It was decided not to publish trade names of drugs in the National Formulary itself. However the Publications Committee has been authorized by the Council to determine other possible methods for making this information available.

It was voted to increase life membership dues, effective April 1, 1954, but members of the ASSOCIATION who have been in continuous good standing may transfer to life membership under the present dues arrangement during their current membership year and up to the date on which their 1954–1955 dues become due.

After hearing Dr. H. Van Zile Hyde of the Division of International Relations of the U. S. Public Health Service explain the development of international standards, for drugs, which has led to the publication of the so-called "International Pharmacopœia," it was decided to offer the services of the AMERICAN PHARMACEUTICAL ASSOCIATION in the dissemination of galley proofs of the proposed international standards to interested groups and individuals in the United States who might be in a position to make constructive comments on these proposed standards.

Steps were taken to cooperate with the Committee on Student Branches in the development of the Pharmacy Student Section of the Association, which was endorsed at the 1953 Convention, and there is every indication that it will be possible to launch this Section at the Boston Convention.

Messrs. J. B. Fullerton and A. R. Granito were re-elected for five-year terms as members of the Committee on National Formulary.

Following a report of the Committee on Property and Funds as to the necessity for enlarging library facilities it was voted to expand the space available for the present library by the addition of a gallery, which will furnish additional stack room and it was also decided to air condition the library and reading room in connection with the new construction.

## STUDENT BRANCHES

At the December meeting of **West Virginia University Branch,** Dean J. L. Hayman spoke on the past history of the College of Pharmacy. He also discussed the plans for the new building to house the College of Pharmacy, which is expected to be completed by September, 1956.

At their January meeting this group appointed a committee to choose subjects for the G. H. Dent Essay Award.

At the January 13 meeting of the **University of Utah Branch,** Henry Eyring, dean of the Graduate School at the University of Utah, spoke on "Action of the Sulfonamides on Enzymes." Forty-five students attended this meeting and found the Dean's talk both educational and entertaining.

President Tom Novak presided over the regular business meeting of the **Howard College Branch** on January 14. At this time it was reported that the Branch lacked only three members in order to obtain 100 per cent membership in the A.PH.A.

The **University of Florida Branch** entertained the faculty and students of the College of Pharmacy at their annual Christmas party. Highlights of the party were skits presented by various organizations of the college, and presentation of annual awards. John Brandon and Frederick Molpus divided the Borden Scholarship award, each receiving $150, for having the highest average in the College of Pharmacy. George Dinter received the William Emrich Award, consisting of a year's membership in the A.PH.A., for attaining the highest average in the junior class. Graduating seniors were presented with memberships in the state association by J. W. McDonald, Vice-President of the Florida State Pharmaceutical Association.

Newly elected officers of the Branch for 1954 include: Bob Schatz, president; Jim Smith, vice-president; Virginia Gibson, secretary; Marian McDonald, treasurer; Frank Gayle, reporter.

Mr. P. A. Williams, District Supervisor of the Division of Narcotic Control, spoke to the **University of Houston Branch** on December 14. His subject

(*Continued on page 120*)

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Lange, Edward W., Milwaukee
Sturgeon, Aaron G., Wauwatosa
Zimmerman, Leroy H., Janesville

### FOREIGN

Olalde, Aurelio, Mexico, D. F.

## Deceased Members

Bardos, Coleman, Jr., New York City, May, 1953
Crews, Theodore T., Atlanta, Ga., Jan. 17, 1953
Huff, S. W., Sr., Atlanta, Ga., Nov. 12, 1953
Lawler, Edward T., Lackawanna, N. Y.
McCurdy, Warren K., New Brunswick, N. J.
Mendonse, J. C., Los Angeles, Calif., April 12, 1953
Nemon, Luther M., Dunbar, Pa., Jan. 6, 1954
Olive, Alfred H., Birmingham, Ala.

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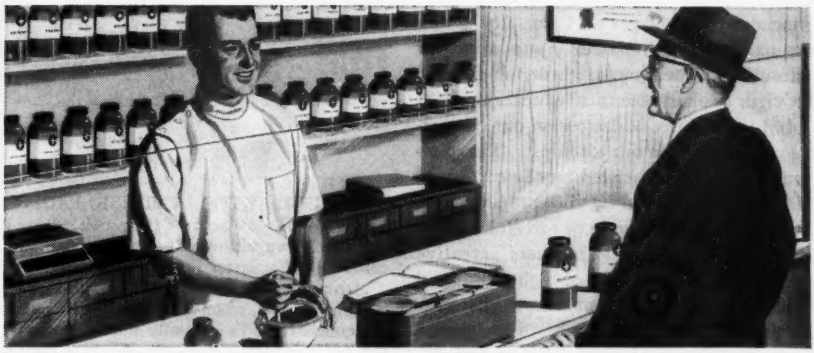

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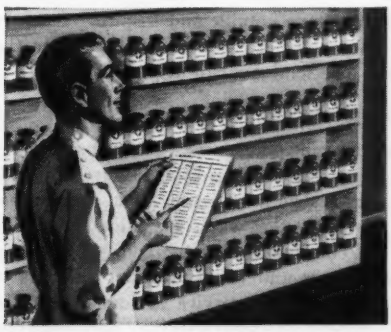

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RAHWAY, NEW JERSEY

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## Strengths of Pharmacy • • • *from page 95*

### Seminars for Teachers

In recent years, we have become interested not only in what our teachers teach but in how well they teach. The seminars for teachers, conducted annually by the American Association of Colleges of Pharmacy under the patronage of the American Foundation for Pharmaceutical Education, are bringing new life and new vigor to pharmaceutical education. Just as we need to reinforce and broaden our curriculum, we need to vitalize our teaching. The quality of our product is influenced by the quality of our student material, and by the competence of our instructors. They should be forceful and imaginative and enthusiastic teachers, creative thinkers, and men and women of high moral and ethical standards. They should know their subject material, and how to teach it. They should develop and maintain student interest and enthusiasm. They should be fully convinced of the value of the work they are doing, and skillful enough to do it well. Pharmacy has had great teachers in the past. Remington was one of them. We have notable and inspiring teachers now. We shall need even more of them in the future. The seminars can help.

### Continuation Study

For practicing pharmacists, study should never end. Minds must be refreshed and refurnished. Educators realize more keenly than do pharmacists, I think, that pharmaceutical education must be continuous. Many colleges offer refresher courses and workshops and seminars to keep pharmacists in service in touch with the latest professional and scientific developments. The pharmacist returns to the college briefly for instruction. Some schools and associations provide itinerant instructors and advisers and offer other valuable extension services. A few college faculties even leave their campuses and go to the pharmacist to make it easy for him to learn the new. Teachers need to keep in touch with reality. They should know what is actually going on in practice. Close contact with the prescription room is essential. Teachers who participate in continuation education soon discover that teaching a voluntary group of mature pharmacists who are determined to learn, is quite different from instructing the captive audience of the college classroom. In every case the teacher as well as the pharmacist is stimulated.

**(The final chapter of Dean Muldoon's Remington Medal Address will be printed in the March issue of THIS JOURNAL.)**

## NNR

PRODUCTS RECENTLY ACCEPTED BY THE A. M. A. COUNCIL ON PHARMACY AND CHEMISTRY

**VITAMIN $B_{12}$ WITH INTRINSIC FACTOR CONCENTRATE.**—Bifacton (Organon).—A complex prepared from vitamin $B_{12}$ and intrinsic factor concentrate. The latter is prepared from hog stomach.

*Actions and Uses.*—Vitamin $B_{12}$, also known as the extrinsic factor, when combined with intrinsic factor concentrate (a partially purified preparation of the intrinsic factor of Castle obtained from stomach tissue of hogs), is effective orally for the treatment of pernicious anemia with and without neurological complications. It is also effective by virtue of its vitamin $B_{12}$ content in the treatment of tropical and nontropical sprue, nutritional macrocytic anemia caused by vitamin $B_{12}$ deficiency, and macrocytic anemia of infancy. The intrinsic factor, which is lacking in patients with pernicious anemia, increases the efficiency of alimentary absorption of vitamin $B_{12}$.

Oral administration of vitamin $B_{12}$ with intrinsic factor concentrate produces an adequate hematopoietic response in patients with pernicious anemia; therefore, it is suitable to replace injectable cyanocobalamin or liver for patients in whom parenteral therapy is difficult or undesirable. Patients should be carefully observed during oral treatment; if expected improvement does not occur, further examination should be made to rule out complicating disorders such as infection, gastrointestinal malfunction, or undiagnosed malignant disease. In the presence of any such complication, the dosage may need to be increased or abandoned in favor of injection therapy with cyanocobalamin or liver.

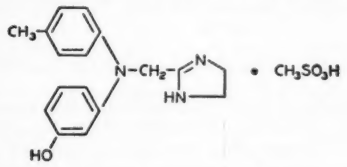
Vitamin $B_{12}$ with intrinsic factor concentrate is fairly stable in dry form, but until more is known regarding the keeping qualities of the intrinsic factor, the mixture should be protected from moisture, light, and heat above 45° C. The mixture has not been reported to produce any toxic effects. The possibility of gastrointestinal allergy to hog protein, from which the intrinsic factor is derived, should be borne in mind.

*Dosage.*—Vitamin $B_{12}$ with intrinsic factor concentrate is administered orally. The potency is expressed in terms of the U. S. P. oral unit of hematopoietic activity. The average daily dosage for the treatment of pernicious and related macrocytic anemias is 1 U. S. P. oral unit daily, in two divided doses of one-half unit each before the morning and evening meals. In severe cases, a more rapid response may be achieved with an initial daily dosage of 2 U. S. P. oral units, also given twice daily in equally divided doses for the first one or two weeks of therapy.

Reticulocyte values usually rise to peak levels within 5 to 12 days. Values for other formed elements of the blood approach normal within 8 to 10 weeks. Megaloblastic bone marrow may return to normal within a few days. Neurological complications usually are relieved within a period of 1 to 12 weeks, depending on their duration and the intensity of the therapy.

Organon, Inc., Orange, N. J.

**PHENTOLAMINE METHANESULFONATE.**—Regitine Methanesulfonate (Ciba).—$C_{17}H_{19}N_3O \cdot CH_4O_3S$.—M.W. 377.45.—2-{[N-(*m*-Hydroxyphenyl)-*p*-toluidino]methyl}-2-imidazoline methanesulfonate.—The structural formula of phentolamine methanesulfonate may be represented as follows:



*Actions and Uses.*—Phentolamine methanesulfonate, readily water-soluble salt of the adrenergic blocking agent phentolamine base, exhibits adrenolytic and sympatholytic effects. The methanesulfonate salt is used for parenteral injection in the diagnosis and surgical management of hypertension caused by pheochromocytoma, a tumor that characteristically gives rise to excessive circulating epinephrine and/or levarterenol (*l*-norepinephrine). Phentolamine, as the hydrochloride salt, is administered orally to control blood pressure increases in patients with pheochromocytoma until surgical removal can be undertaken. For other uses and the dosage of the orally administered hydrochloride salt, see the monograph on phentolamine hydrochloride.

Phentolamine effectively blocks the pressor activity of epinephrine and levarterenol for longer periods than does piperoxan, and in smaller amounts. Therefore, phentolamine methanesulfonate is considered more useful and less toxic than piperoxan as a diagnostic agent to exclude the presence of pheochromocytoma as a cause of paroxysmal or persistent hypertension. On the other hand, piperoxan is less likely to cause a misleading drop in blood pressure in ordinary cases of hypertension. It should, therefore, be employed as a confirmatory test when interpretation of the results is in doubt.

The use of phentolamine methanesulfonate as a diagnostic test for pheochromocytoma is based on its adrenolytic effect in producing a fall in blood pressure during a "typical" paroxysmal hypertensive episode.

A "false positive" drop in pressure may occur in patients with uremia and in those who have received sedatives prior to the test with phentolamine. Therefore, the test should be performed in the absence of sedation (or any anodyne) for at least 24 hours preceding. Basal blood pressure is first determined following a period of rest in the supine position and the injection of the agent is delayed after introduction of the needle to allow the hypertensive effect of needle pain to subside.

*Dosage.*—Phentolamine methanesulfonate is employed in permanently stable, lyophilized form for preparation of a fresh aqueous solution for administration by intramuscular or intravenous injection. In solution, phentolamine salts are stable for only about six months. For adults, the intramuscular or intravenous test dose is 5 mg. in 1 cc. of distilled water for injection; in children an intramuscular dose of 3 mg. or an intravenous dose of 1 mg. is usually adequate. A typical positive response is characterized by an immediate drop in systolic and diastolic blood pressure. The maximum depressor effect is usually obtained within 2 minutes after intravenous injection and within 20 minutes after intramuscular injection. Generally, the systolic fall is approximately 60 mm. Hg, with the diastolic fall exceeding 25 mm. Hg, but the degree of response may be somewhat less in some patients. After intramuscular injection, the reduction usually persists for some 30 minutes and gradually returns to previous levels within 3 to 4 hours. After intravenous administration, the blood pressure usually returns to previous levels within 10 to 15 minutes and occasionally within $2\frac{1}{2}$ minutes. Negative responses are recorded when there is no change in blood pressure, a slight or moderate rise in blood pressure, or only a slight lowering of blood pressure. The intravenous route should be employed if it is necessary to repeat the test to rule out false reactions.

**Tests and Standards.**—

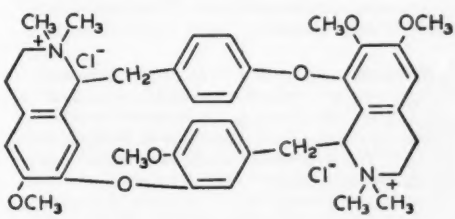
*Physical Properties:* Phentolamine methanesulfonate is a white, odorless, bitter powder, m. p. 175–180°. It is freely soluble in water, very slightly soluble in acetone, and practically insoluble in ethyl acetate. The amounts that dissolve in the following solvents to form 100 ml. of solution are: 6.8 Gm. in alcohol and 0.15 Gm. in chloroform. Phentolamine methanesulfonate is stable when protected from moisture. The *p*H of the 1% solution is 4.5–5.5.

[For more information regarding this monograph see *J. Am. Med. Assoc.*, **152,** 1534 (Aug. 15, 1953).]

Ciba Pharmaceutical Products, Inc., Summit, N. J.

**Lyophilized Regitine Methanesulfonate:** 5 mg. ampuls. Each ampul contains 5 mg. of phentolamine methanesulfonate. Packaged with 1-cc. vial of water for injection. U. S. patent 2,503,059.

**DIMETHYL-TUBOCURARINE CHLORIDE.**—MecostrinChloride (Squibb).—$C_{40}H_{48}Cl_2N_2O_6$.—M. W. 723.71.—O-Methyl-*d*-tubocurarine chloride.—Dimethyl ether of *d*-tubocurarine chloride.—The structural formula of dimethyl-tubocurarine chloride may be represented as follows:



*Actions and Uses.*—Dimethyl-tubocurarine chloride has the same actions and uses as dimethyltubocurarine iodide and tubocurarine chloride ex-

***(Continued on next page)***

## N.N.R.

• • • • • • • • • *from preceding page*

cept that the efficacy of the methylated derivatives in the treatment of spastic diseases has not yet been determined. (See the monographs on dimethyl-tubocurarine iodide and tubocurarine chloride.)

*Dosage.*—Dimethyl-tubocurarine chloride has approximately the same ratio of potency as dimethyl-tubocurarine iodide when compared with tubocurarine chloride, but on the basis of the difference in the molecular weights of the two salts, 0.8 mg. of dimethyl-tubocurarine chloride provides a dose equivalent to 1 mg. of the iodide. Like the iodide, dimethyl-tubocurarine chloride is administered only by slow intravenous injection over a period of thirty to sixty seconds. For muscle relaxation in surgery, the average initial dose for adults is 2–3 mg. If needed, 1–1.5 mg. can be added in three to five minutes. After forty-five minutes an additional dose of 1.5–2 mg. may be administered. With ether anesthesia the dose of dimethyl-tubocurarine chloride should be about one-third that used with other anesthetic agents. For shock therapy and manipulative therapy the average dose is calculated on the basis of 0.025 mg. per pound of body weight, using 1 mg. less than this amount for the initial dose in adults. The safe upper limit of dosage is 0.037 mg. per pound of body weight. As a diagnostic agent in myasthenia gravis, the dose is one-fortieth to one-tenth of the adult shock therapy dose (i. e., 0.0006 to 0.0025 mg. per pound of body weight), administered intravenously. The test should always be terminated within two or three minutes by the intravenous injection of 1.5 mg. of neostigmine methylsulfate with 0.6 mg. of atropine sulfate. The same precautions and contraindications should be observed as with other purified derivatives of curare.

**Tests and Standards.**—

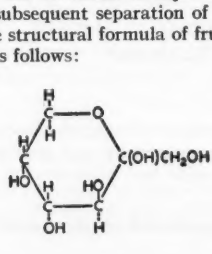
*Physical Properties:* Dimethyl-tubocurarine chloride is a white, odorless, crystalline powder. It decomposes with evolution of gas when heated to about 236°. It is soluble in water and diluted sodium hydroxide; sparingly soluble in alcohol and diluted hydrochloric acid; very slightly soluble in chloroform; and practically insoluble in benzene and ether.

[For more information regarding tests and standards and dosage forms see *J. Am. Med. Assoc.*, **152**, 920 (July 4, 1953).]

E. R. Squibb & Sons, Division of Mathieson Chemical Corporation, New York.

**Solution Mecostrin Chloride:** 10-cc. vials. An isotonic salt solution containing 1 mg. of dimethyl-tubocurarine chloride per 1 cc. Preserved with 0.9 per cent benzyl alcohol.

**FRUCTOSE.**—Levugen (Mead Johnson).—$C_6H_{12}O_6$.—M.W. 180.16.—Levulose.—Fructose is prepared by the inversion of aqueous solution of sucrose and subsequent separation of fructose from glucose. The structural formula of fructose may be represented as follows:



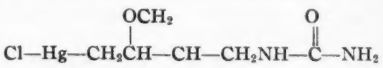
*Actions and Uses.*—Fructose (levulose) like dextrose, administered intravenously in solution, is useful for parenteral carbohydrate alimentation when either fluid or calories are required to replace or supplement the oral consumption of water or food.

[For more information regarding this monograph see *J. Am. Med. Assoc.*, **153**, 274 (Sept. 26, 1953).]

Mead Johnson & Company, Evansville, Ind.

**Solution Levugen 10%:** 1-liter bottles. A solution containing 0.1 Gm. of fructose in each cc.

**CHLORMERODRIN.**—Neohydrin (Lakeside).—$C_5H_{11}ClHgN_2O_2$.—M. W. 367.22.—[3-(Chloromercuri)-2-methoxypropyl]urea.—The structural formula of chlormerodrin may be represented as follows:



*Actions and Uses.*—Chlormerodrin is a mercurial diuretic compound chemically related to meralluride. It is more effective orally than previously introduced mercurial diuretics that can be administered by this route. It is thus useful for oral mercurial diuretic therapy in the management of recurring cardiac and nephrotic edema, ascites of liver disease, and in carefully selected cases of subacute and chronic nephritis. Chlormerodrin may supplant the need for injection therapy in some patients, but in others parenteral treatment may be required to replace or supplement oral medication.

*Dosage.*—Chlormerodrin is administered orally. The average daily dose for adults ranges from 18.3 mg. (equivalent to 10 mg. of mercury) to 73.2 mg. (40 mg. of mercury), depending upon the severity of edema or circulatory failure. The dosage for children is adjusted in proportion to body weight. Reduction of dosage or withdrawal of medication may be necessary to eliminate side-effects.

**Tests and Standards.**—

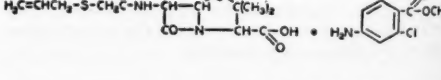
*Physical Properties:* Chlormerodrin is a white, odorless powder with a bitter, metallic taste, m. p. 145.0–155.0°. It is very soluble in sodium hydroxide T. S. and very slightly soluble in chloroform. The amounts which dissolve in the following solvents to form 100 ml. of solution are: 0.56 Gm. in alcohol, 1.1 Gm. in methyl alcohol, and 1.1 Gm. in water. Chlormerodrin is stable to light and air. The *p*H of a 0.5% solution is 4.3–5.0.

[For more information regarding tests and standards and dosage forms see *J. Am. Med. Assoc.*, **152**, 331 (May 23, 1953).]

Lakeside Laboratories, Inc., Milwaukee, Wis.

**Tablets Neohydrin:** Each tablet contains 18.3 mg. of chlormerodrin (equivalent to 10 mg. of mercury).

**CHLOROPROCAINE PENICILLIN O.**—Depo-Cer-O-Cillin Chloroprocaine (Upjohn).—A crystalline salt of 2-chloroprocaine and penicillin O. The structural formula of chloroprocaine penicillin O may be represented as follows:



*Actions and Uses.*—Chloroprocaine penicillin O, a water-insoluble salt of penicillin O, has the same spectrum of antibacterial activity as other salts of penicillin O and penicillin G. (See *N.N.R.* under the monographs on penicillin G and potassium penicillin O.)

The intramuscular injection of chloroprocaine penicillin O, as a suspension dispersed in water, results in the formation of a depot of penicillin O, similar to that produced by corresponding preparations of procaine penicillin G. The levels of antibiotic in the blood produced by intramuscular injections of an aqueous suspension of chloroprocaine penicillin O are approximately equal to those obtained by a similar injection of an aqueous suspension of procaine penicillin G. With aqueous chloroprocaine penicillin O, the levels of the antibiotic in the blood usually persist for about 24 hours as compared to 12 to 18 hours with aqueous procaine penicillin G.

As with soluble salts of penicillin O, the majority of patients sensitive to salts of penicillin G will tolerate chloroprocaine penicillin O without allergic reactions; however, some patients may be sensitive to both penicillin G and penicillin O. In such patients another antibiotic should be used.

*Dosage.*—Chloroprocaine penicillin O is administered intramuscularly as an aqueous suspension containing 300,000 units per cc. In acute staphylococcic, streptococcic, and pneumococcic infections, the minimum dosage is 300,000 units injected once daily and continued until the temperature has returned to normal for at least 48 hours and evidence is present that the infection is disappearing. When these infections are severe, 600,000 units every 12 hours may be employed, or replaced by injections of a solution of potassium penicillin O at shorter intervals. In acute gonorrhea, a single injection of 300,000 units is usually sufficient to effect a cure, but patients who fail to respond should be re-treated until a cure has been achieved. In chronic gonorrhea accompanied by complications, higher doses and more prolonged therapy may be required. In the treatment of gonorrhea the possible masking effect of penicillin on the early signs of syphilis should be kept in mind; appropriate tests should be instituted to confirm or exclude the presence of that disease.

Aqueous suspensions may be kept at room temperature for three weeks without a significant loss of potency and without caking. If refrigerated, the suspension should be gradually warmed prior to injection and shaken vigorously to make certain that all of the penicillin is in suspension. Excessive heating should be avoided to prevent destruction of the physical or antibacterial properties of the suspension.

The Upjohn Company, Kalamazoo, Mich.

**Depo-Cer-O-Cillin Chloroprocaine:** 1,500,000 unit vials of chloroprocaine penicillin O. U. S. trademarks 515,760 and 554,422.

## NEW GENERIC AND BRAND NAMES RECOGNIZED BY THE A.M.A. COUNCIL ON PHARMACY AND CHEMISTRY

ARSTHINOL (formerly MERCAPTOARSENOL) for 2-(3′-acetamido-4′-hydroxyphenyl)-1,3-dithia-2-arsacyclopentane-4-methanol: Balarsen (Endo Products, Inc.).

AUROTHIOGLYCANIDE for aurothioglycolanilide: Lauron (Endo Products, Inc.).

CHLOROPROCAINE PENCILLIN O for the chloroprocaine salt of penicillin O: Cer-O-Cillin Chloroprocaine (The Upjohn Company).

CHLORQUINALDOL for 5,7-dichloro-8-oxyquinaldine: Sterosan (Geigy Pharmaceuticals).

FUMAGILLIN for the antibiotic produced by certain strains of Aspergillus fumigatus: Fumidil (Abbott Laboratories).

LEVORPHAN TARTRATE for levo-3-hydroxy-N-methylmorphinan tartrate: Levo-Dromoran Tartrate (Hoffmann-LaRoche, Inc.).

NEOMYCIN SULFATE for the antibiotic produced from cultures of Streptomyces fradiae.

PRAMOXINE for γ-morpholinopropyl 4-*n*-butoxyphenylether: Tronothane (Abbott Laboratories).

PRIMOSTRUM for a preparation of primiparous colostrum: Que-Test (General Pharmacal Corporation).

RACEMORPHAN HYDROBROMIDE (formerly METHORPHINAN HYDROBROMIDE) for *dl*-3-hydroxy-N-methylmorphinan hydrobromide: Dromoran Hydrobromide (Hoffmann-LaRoche, Inc.).

SOMATOTROPIN for the somatotropic ("growth") hormone derived from the anterior pituitary gland.

STANOLONE for androstan 17(β)-ol-3-one: Neodrol (Foundation Laboratories, Inc.-Syntex).

STILBAMIDINE ISETHIONATE for 4,4′-stilbenedicarboxamidine di-(β)-hydroxyethanesulfonate).

SUCCINYLCHOLINE CHLORIDE for diacetylcholine dichloride: Anectine Chloride (Burroughs, Wellcome & Company).

TOLAZOLINE HYDROCHLORIDE for 2-benzyl-2-imidazoline hydrochloride: Priscoline Hydrochloride (Ciba Pharmaceutical Products, Inc.).

## Dermatological Preparations of Accepted Antihistamine Drugs Omitted from N.N.R.

The following opinions were expressed by some leading dermatologists in answer to questions concerning the topical use of ointments and creams containing antihistaminic drugs: (*a*) Numerous cases of dermatitis have appeared coincidentally with the use of such preparations. (*b*) Although this has not been attributed to all of the antihistamine drugs, they are potentially capable of producing cutaneous sensitivity. (*c*) Such adverse effects can be considered to outweigh their usefulness at the present time.

The Council on Pharmacy and Chemistry of the A.M.A. has concluded that, although some of the topical antihistaminic products apparently have been helpful in relieving certain types of pruritus, the risk of contact dermatitis now overshadows their possible efficacy for that purpose and that further evidence is required to establish their usefulness. The Council voted to discontinue the acceptance of dermatological preparations of all antihistamine drugs, to omit from "New and Nonofficial Remedies" all currently accepted products in that category.

[Report of the Council on Pharmacy and Chemistry, *J. Am. Med. Assoc.*, **153**, 1447 (December 19, 1953).]

## Student Branches

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was "The Federal Narcotic Act as it Relates to the Practice of Pharmacy."

On January 11 the Branch sponsored the first of a series of lectures on "Careers in Pharmacy," at which Mr. James Woodyard, owner of the Naborhood Pharmacy, Houston, Texas, discussed "The Retail Pharmacy." The subjects of "Pharmacy Detailing," "The Hospital Pharmacy," "Manufacturing Pharmacy," and "Graduate Work in Pharmacy" will be discussed in the ensuing months.

**Ohio Northern University Branch** held a meeting on December 3 at which Mr. Bill Simms of Fort Wayne Drug was guest speaker. Mr. Simms showed a film and discussed "Merchandising."

Fifty students attended the January 9 meeting of the **University of Arizona Branch.** Mr. Charles M. Nielsen, member of the Arizona Board of Pharmacy, spoke on "What the Board of Pharmacy Expects of You."

The following officers were elected at this meeting: Richard Glassock, president; Carol Park, first vice-president; Delia Robredo, second vice-president; Grace Hunt, secretary; Richard Albrecht, treasurer; Stanley Farber, sgt. at arms.

Following the regular business meeting of the **University of Connecticut Branch,** held on January 18, there was a panel discussion on the topic of "Pharmacy Apprenticeship." Students participating in the panel were Eugene Tanski, Robert Dickman, July Schiperio, and Fenna Lee Fisher. Professor N. Fenney of the College of Pharmacy acted as moderator.

Miss Anne Grosso, chief pharmacist at Columbia Presbyterian Hospital, addressed the **Columbia University Branch** on December 2. She described the many services offered by the hospital pharmacy department and explained the many opportunities in the field of hospital pharmacy.

During January a group of students comprised of members of the junior and senior classes and graduate students visited the plants of Eli Lilly and Company in Indianapolis and Abbott Laboratories in North Chicago. The trip was under direction of Prof. Frank J. Pokorny, assistant professor of biology.

At their meeting of January 29, the **University of Minnesota Branch** heard Dr. D. F. Mitchell of the University of Minnesota Dental School. Dr. Mitchell's subject was "How Good Are the New Wonder Dental Preparations?"

The **University of New Mexico Branch** is planning a series of programs including a guest speaker each month to discuss the various fields of pharmacy. Last month, Paul Stark, a retail pharmacist in Albuquerque, discussed "The Small Retail Store with Emphasis on a Franchise."

The **University of Mississippi Branch** met on January 11. Howard Grubbs, president, presented the principal speaker, Dr. James W. Ward, professor of Histology and Anatomy, who addressed the group on the subject of "Parasitology." Subsequent to his talk the following officers were elected: Yancey A. Moore, Jr., president; Richard A. Polizzi, vice-president; Ira B. Humphrey, secretary; and Thomas H. Wheeler, treasurer.

Dolores Malia, secretary of the **University of Pittsburgh Branch,** reports that at the Branch meeting held January 7, favorable action was taken on the resolution calling for formation of a Student Section within the framework of the A.PH.A. Says Miss Malia: "We feel that a Student Section will be most helpful in increasing student interest in the A.PH.A., and we are looking forward to taking an active part in the 1954 convention."

The January 12 meeting of the **University of Maryland Branch** was given over to a brief discussion of the convention to be held at Temple University this coming May. Approximately 20 members attended and Branch President Robert Sinker presided.

The regular meeting of the **University of Kansas Branch** was held in the School of Pharmacy on January 6. Geraldine Walterscheid, secretary, reports that 22 members attended and that the group was joined by the Veterinary class in pharmacy.

## LOCAL BRANCHES

The **New York Branch** of the A.PH.A. met at Columbia University College of Pharmacy, New York, N. Y., on January 11. Speakers were Dr. Lloyd C. Miller, Director of Revision, Pharmacopeia of the United States of America, whose subject was "The New Pharmacopeia"; and F. Royce Franzoni, president, AMERICAN PHARMACEUTICAL ASSOCIATION, who talked on "A National Board Examination for Pharmacy."

The 1954 roster of officers of the **Western New York Branch** of the A.PH.A. is as follows: President, Dr. John Kleber; First Vice-President, Rose Marie Lee; Second Vice-President, William Burckart; Secretary, Sylvia Torre; and Treasurer, Melvin Monteith.

Mr. Ben Kingwell was the guest speaker at the January 28 meeting of the Greater Los Angeles Branch of the A.PH.A. Mr. Kingwell, past president of the Branch, spoke on current legislative matters and told of the newly formed State Legislative Committee of which he is a member along with representatives from each pharmacy organization in California.

Newly elected officers were installed. They are Dr. Roger Erickson, president; Henry Herman, vice-president; Alice Appel, secretary; and Mary Howey, treasurer.

# *101st Convention*

# American Pharmaceutical Association

and

Affiliated and Related Organizations

## Hotel Statler
## Boston, Mass.
## August 22-27, 1954

The next annual meeting of the American Pharmaceutical Association will be held in Boston, Mass., August 22 to 27, 1954.

Members planning to present papers before any Section during this meeting are earnestly requested and strongly urged to notify the appropriate Section secretary of their intention promptly.

Titles and abstracts (not to exceed 200 words) of papers should be submitted by *May 15, 1954, or preferably earlier,* in order to insure a place on any section program. Send titles and abstracts of papers to the appropriate Section Secretary.

**SCIENTIFIC SECTION**
Ray S. Kelley, Secretary
179 Longwood Avenue
Boston 15, Mass.

**EDUCATION AND LEGISLATION SECTION**
Frank L. Mercer, Secretary
St. Louis College of Pharmacy and Allied Sciences
Euclid and Parkview Place
St. Louis 10, Mo.

**HISTORICAL PHARMACY SECTION**
George E. Osborne, Secretary
2488 Redondo Avenue
Salt Lake City, Utah

**PHARMACEUTICAL ECONOMICS SECTION**
James W. Lansdowne, Secretary
5235 Cornelius Avenue
Indianapolis 8, Indiana

**PRACTICAL PHARMACY SECTION**
Samuel W. Goldstein, Secretary
2215 Constitution Avenue, N. W.,
Washington 7, D. C.

*For detailed information address the*

**Secretary of the American Pharmaceutical Association, 2215 Constitution Avenue, N. W., Washington 7, D. C.**

## Propylene Glycol

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A study of the more preferred flavor-mixtures reveals that anise oil is one of the flavors common to all five flavor-mixtures that were most preferred by the panel. The organoleptic study indicated that the taste of propylene glycol might be masked by the addition of certain mixtures of flavors to the extent that the aftertaste no longer seemed to be an objection to its use in oral pharmaceuticals.

A brief study was made to investigate the panel's taste-acceptability of several of the flavor-mixtures added to propylene glycol when this solvent served as the vehicle for drugs. Since the combination of aspirin acetophenetidin, and caffeine appeared to be stable in propylene glycol, these particular ingredients were selected as the drugs to be added. The three most preferred and the three least preferred flavor-mixtures were added and the panel again evaluated the medication. The most preferred flavors still remained the flavors of choice.

### Summary

1. A study of the use of propylene glycol in some oral pharmaceuticals has indicated that if a nonalcoholic solvent is desired for such medications as members of the vitamin B complex, the barbiturates, the pyrazolines, or phenolphthalein, propylene glycol may be one of the solvents of choice from the standpoint of both stability and low cost. Acetylsalicylic acid and chloral hydrate are sufficiently stable in propylene glycol to justify the consideration of these drugs for an oral liquid dosage form.

2. An attempt was made to mask the bitter aftertaste of propylene glycol and to study its taste acceptability by organoleptic methods. The results indicated that flavor-mixtures were more effective than single flavors, and that anise oil combined with methyl salicylate, peppermint oil, sassafras oil, or orange oil was most preferred by the panel and definitely increased the consumer taste-acceptability.

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## CARDIAC EMERGENCY KIT

To facilitate the handling of cardiac emergencies, two physicians have developed a portable kit containing the necessary therapeutic agents and accessories, and a tabulation of information relevant to the proper use of the materials. Brief statements on the dosage forms of the medicinals available and their therapeutic actions are given in the report by the physicians.

The following advantages are claimed for the kit:

1. An adequate supply of necessary cardiac drugs is conveniently and readily at hand where it is most apt to be needed for treating critically ill patients coming into the emergency room.

2. The kit is transportable and can, therefore, be used elsewhere for other patients already admitted to the hospital; for example, obstetric or surgical patients. This is sometimes of great importance, especially at night in a small hospital when the pharmacist may not be available or when for some other reason there may be some delay in obtaining needed medications through the regular channels.

3. The house staff and nursing staff are able to familiarize themselves with a specified number of cardiac drugs, their uses and administration. A more or less standard routine of procedure can be established, thus eliminating delay and confusion. All drugs are clearly labeled and necessary precautions noted. A summary therapy table is incorporated in the kit.

4. The responsibility for maintaining appropriate emergency cardiac drugs is centralized and is under the supervision of a trained cardiologist. Duplication of drugs is avoided, and since many unnecessary drugs are eliminated, there is considerable financial saving to the hospital. A periodic inventory guards against depletion of the stocked drugs, eliminates those which may become obsolete, and encourages the addition of the suitable newer drugs.

[Silverman, J. J., and Trudeau, Mary, *Am. Practitioner*, **4**, 840(Dec., 1953).]

## POLIO VACCINE PRODUCERS

Cutter Laboratories, of Berkeley, Calif.; Eli Lilly and Company, Indianapolis; Parke, Davis & Company, Detroit; Pitman-Moore Company, a division of Allied Laboratories, Inc., Indianapolis, and Wyeth Laboratories, a division of American Home Products Corporation, of Philadelphia will produce polio vaccine for mass trials on a nonprofit basis. It is planned to inoculate at least 500,000 second grade school children, and possibly as many as a million, before the onset of the polio epidemic season later this year. It is important to point out, however, that no polio vaccine will be available for the general public in 1954. It will be 1955 before it can be demonstrated whether or not the substance is effective.

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# EARLY AMERICAN PHARMACIES

BY GEORGE B. GRIFFENHAGEN*

## XVII. THE BENHAM APOTHECARY SHOP

**Address:** Rochester Museum of Arts and Sciences, 657 East Avenue, Rochester 7, N. Y.
**Hours Open:** Monday through Saturday—9:00 A.M. to 5:00 P.M. Sunday—2:00 P.M. to 5:00 P.M.
**Admission:** Free.
**Floor Space:** 269 square feet (period room restoration in Hall of Cultural History, third floor).
**Owner:** Rochester Museum of Arts and Sciences.
**History:** A restoration of the Leroy Benham Apothecary Shop in Canandaigua, New York, of the period 1865–75. The fixtures were obtained from this drugstore, which is still in operation today, and the equipment was collected throughout the area as the result of radio broadcasts and newspaper appeals. A retired druggist, Hilton Snider, supplied numerous accessories, drugs, and containers. The restoration was opened for exhibition in 1943.
**Description:** The old shop is complete to the laboratory sink and the pitcher pump. The ornamental bottles in the windows complement the picture. There is a sizable collection of gilt-labeled bottles, urnlike bottles for colored liquids, laboratory equipment including pill rollers, mixing machines, mortars, grinders, decanters, filters, and balances; also, a large accumulation of medicine in original cartons and bottles. Life-size figures of a druggist and a customer dressed in costumes of the period lend a realistic atmosphere.

## XVIII. THE COOPERSTOWN DRUGGIST SHOP

**Address:** The Farmers' Museum, Inc., Cooperstown, N. Y.
**Hours Open:** April 25 to December 31: daily, 9:00 A.M. to 6:00 P.M.
**Admission:** $1.00 (to entire grounds).
**Floor Space:** 200 square feet (separate building).
**Owner:** New York State Historical Association.
**History:** Recreation of a village druggist shop built by Dr. Freeborn Thrall in Hartwick, N. Y. in 1832. The shop was dedicated in cooperation with the New York State Pharmaceutical Association on June 30, 1953.
**Description:** This building was originally a doctor's office (Thrall of Hartwick, N. Y.) but is very similar to a number of druggist shops found in central New York in the period between 1820 and 1840. The building was completely dismantled and rebuilt in Cooperstown so that every detail is as it was in its original setting.
**Reference:** *N. Y. State Pharmacist*, 28, 34 (July, 1953).

* Associate Curator, Division of Medicine and Public Health, Smithsonian Institution, Washington, D. C., and Consultant to the A.Ph.A. Museum.
The 17th and 18th of a series of monographs describing apothecary shop restorations on exhibition in the United States.

# BRIEFLY NOTED

## COLLEGES

The Alumni Association of the **Philadelphia College of Pharmacy and Science** honored three retired professors at the Mid-Winter dinner, February 20. Those cited were Dr. Horatio C. Wood, Jr., Dr. Karl Scholz, and Edmund H. MacLaughlin. Alumni President Louis Milner was toastmaster at the dinner which was held in the college auditorium.

On January 11, the **University of New Mexico College of Pharmacy** was featured in a local TV show which was one of a series entitled "Six Keys." The pharmacy show, called "Pink Pills and Progress," showed developments in the field of pharmacy from prehistoric man up to the present. The college has been invited to Roswell, N. M. for a repeat performance on their local TV station sometime this spring.

Some fifteen assistantships and fellowships will be open next fall at the **University of Wisconsin School of Pharmacy** to qualified students entering graduate work. Students interested in advanced study in some specialized field of pharmacy are urged to apply as soon as possible.

Dean B. V. Christensen and Dr. Arthur Tye of The **Ohio State University College of Pharmacy** were recently invited by the National Research Council to present a paper discussing their method of measuring analgetic potency before The Committee on Drug Addiction and Narcotics. The meeting was held in the historical Ether Dome of the Massachusetts General Hospital in Boston where the first successful operation under ether was performed. Dr. Tye presented the paper which was one of three on laboratory methods of analgesimetry discussed at the meeting.

Dr. George Urdang, emeritus professor of the history of pharmacy at the **University of Wisconsin,** director of the American Institute of the History of Pharmacy, and honorary president of the World Organization of Societies for Pharmaceutical History, has been named principal investigator in the **University of Wisconsin School of Pharmacy.**

The Department of Biology of the **St. Louis College of Pharmacy and Allied Sciences** has received a grant of $8,850 from the National Cancer Institute of the United States Public Health Service.

The two-year project will be directed by Dr. Frank L. Mercer, associate professor of biology and pharmacognosy, with Taylor E. Lindhorst as research assistant.

## ASSOCIATIONS

Reynold Salvatore of Trenton, N. J., won the Joseph A. DeRosa Memorial Trophy awarded annually by the **New Jersey Pharmaceutical Association** for the best window display during Pharmacy Week. Mr. Salvatore's display was adjudged as best of all New Jersey entries depicting the professional role of the pharmacist in service to the public.

The award honors a former member of the State Board of Pharmacy from Jersey City, N. J., who died last year. His brother, Anthony, is a member of the Association's Board of Trustees.

Grover C. Richman, Jr., attorney general in Governor Meyner's cabinet, was the principal speaker at the dinner January 20 climaxing the day-long mid-winter meeting of the **New Jersey Pharmaceutical Association** held in Trenton, N. J.

As head of the Department of Law and Public Safety, Mr. Richman is in charge of the enforcement and administration of the Pharmacy Act and the activities of the State Board of Pharmacy.

The 84-year-old organization dedicated its new home at 118 W. State Street, Trenton, as part of the mid-winter festivities.

San Antonio has been selected to host the 75th Diamond Jubilee Convention and Fall and Holiday Gift Show of the **Texas Pharmaceutical Association,** according to a joint announcement by TPA Executive Secretary C. J. M. Roesch of Austin and Charles Herrera, president, **San Antonio Retail Druggists' Association.**

The Plaza Hotel in San Antonio has been designated as the headquarters for the convention and show which will be held Sunday through Wednesday, July 25–28. More than 1,500 Texas pharmacists and wives are expected to attend from every part of the state.

At the meeting of the **Northwestern Ohio Branch of the A.Ph.A.** on January 25, the principal speaker, Dr. Don E. Francke, discussed the British Pharmaceutical Conference in London and the International Pharmaceutical Federation in Paris in 1953. Dr. Francke was president of the A.PH.A. in 1951–52, and presided at the centennial A.PH.A. Convention in Philadelphia.

*(Continued on next page)*

## Briefly Noted

• • • • • • • • • *from preceding page*

### HOSPITAL PHARMACY

**The Memorial Hospital Association of Kentucky, Inc.,** has announced the appointment of Mr. Grover C. Bowles, Jr., to its central staff of Associate Hospital Administrators as a consultant for the next few months and on a full time basis beginning early in the Spring. Under the direction of Mr. Gordon A. Friesen, senior hospital administrator, Mr. Bowles will be responsible for paramedical services including, primarily, pharmacy manufacturing and dispensing, and central sterile supply.

The Memorial Hospital Association of Kentucky, Inc., provides for a coordinated hospital system under the United Mine Workers of America Welfare and Retirement Fund. Ten hospitals located in Kentucky, West Virginia and Virginia coal country will be constructed with a central service plant. The entire plan is an effort toward coordination of hospital services and standardizing methods, materials and maintenance. Included in the group operation will be a service center pharmacy where drugs will be compounded for the entire hospital system, comprising more than 1,000 beds. Ground-breaking ceremonies have been held for each of the ten hospitals in the integrated system and actual construction has been under way since July.

Mr. Grover Bowles, as administrator of the paramedical services, will be in charge of the central pharmacy and trained pharmacists will be employed at each of the other hospitals. Mr. Bowles, chief pharmacist at the Strong Memorial Hospital in Rochester, N. Y., has been active in hospital pharmacy since his graduation from the University of Tennessee in 1942. He is a past president of the **American Society of Hospital Pharmacists** and has served on the Society's Executive Committee for several years. He is a member of the Policy Committee of the **Division of Hospital Pharmacy** and has served as a member of the faculty of a number of institutions.

**The Catholic Hospital Association** has announced plans for the Sixth Annual Institute for hospital pharmacists. Meetings will be held in Atlantic City, N. J., on May 17, 18, and 19, in conjunction with the Association's 39th annual convention. "Fulfilling the Objectives of the Catholic Hospital" will be the theme for the 1954 convention.

Dr. George F. Archambault, chief of the Pharmacy Branch, Division of Hospitals, U. S. Public Health Service, Washington, D. C., has been elected president of the **American Society of Hospital Pharmacists** for the 1954–1955 term. Dr. Archambault, a charter member of the A.S.H.P., has been active in the hospital group, as well as the **American Pharmaceutical Association.** He has served on a number of Society committees and has been a member of the faculty for the annual institutes.

Other officers elected for the 1954–1955 term include Vice-President Claude Busick, St. Joseph Hospital, Stockton, California, and Treasurer Sister Mary Berenice, St. Mary's Hospital, St. Louis, Missouri.

### MANUFACTURERS

At the National Medical Congress of the College of Physicians and Surgeons of Guatemala, a special scroll was awarded to the **A. H. Robins Inter-American Corporation** for its display of Robins pharmaceutical products. Held recently in Guatemala City, the Congress attracted the country's most prominent medical men.

The **Upjohn Company** of Kalamazoo, Michigan has announced the appointment of three new associates, Drs. Margaret E. Greig, Warren S. Silver and Harold J. Koepsell, to its research staff.

The appointment has been announced of C. V. Reichelt as director of engineering for **Chas. Pfizer & Co., Inc.** Mr. Reichelt, who joined Pfizer's engineering staff in 1944, is a graduate of Polytechnic Institute of Brooklyn with a degree in mechanical engineering, and is a member of the American Society of Mechanical Engineers and the National Society of Professional Engineers.

Cornelius W. Pettinga, Ph.D., a member of the research staff of **Eli Lilly and Company** for four years, has been named head of the firm's biochemical research department. He is a member of the American Chemical Society and the Society of Sigma Xi.

**Bio-Ramo Drug Co., Inc.,** of Baltimore, Md., has appointed John Franklin Hershner vice-president in charge of sales and new product development. Mr. Hershner is a member of the Board of Trustees of St. Louis College of Pharmacy.

**Ciba Pharmaceutical Products, Inc.** has announced the promotion of Richard H. Roberts, M.D. to the newly created position of Senior Clinical Research Associate on the West Coast. Dr. Roberts assumed his duties on the first of January. His address is 417 Market Street, San Francisco, Calif.

The election of Dr. Maurice L. Tainter, vice-president of **Sterling Drug Inc.** and director of the Sterling-Winthrop Research Institute, Rensselaer, N. Y., as a trustee of Rensselaer Polytechnic Institute has been announced.

One of the leading pharmacologists in the United States, Dr. Tainter is a member of the Board of Governors of Union University and a trustee of the **Albany College of Pharmacy.** He is also president-elect of the New York Academy of Science.

*(Continued on page 128)*

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## Briefly Noted

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Harold W. Crogan, formerly treasurer of **Maltbie Laboratories, Inc.**, has been elected president of the company, succeeding Dr. Russel J. Fosbinder, president since 1945. Dr. Fosbinder will continue as a member of the Board of Directors.

Promotions of Dr. Karl J. Brunings and Dr. Ernest M. Weber to the posts of Director of Chemical Research and Development and Director of Biochemical Research and Development, have been announced by **Chas. Pfizer & Co., Inc.**

### AT RANDOM

Professor Arthur W. Thomas has been designated as the 1954 recipient of the **Henry Hurd Rusby Award.** This Award is given by the Alumni Association of the Columbia University College of Pharmacy in recognition of Professor Thomas' material contributions to the college program during the many years he served as Columbia University representative to the College, as an actively participating member of the Board of Trustees and as the Columbia University head of the Department of Chemistry.

This Award is particularly appropriate since it comes in a year when both the 200th anniversary of Columbia University and the 125th anniversary of the College of Pharmacy are being celebrated. The presentation will be made at the University Bicentennial Dinner to be held at the Waldorf Astoria Hotel, May 31, 1954.

The national convention of **Kappa Psi,** professional pharmaceutical fraternity, was held at the Sheraton Park Hotel in Washington, D.C., December 28–30. About 250 delegates from 68 collegiate and graduate chapters attended the meeting. Host for the convention was the Kappa Psi Chapter of George Washington University, School of Pharmacy.

Dr. Milton L. Neuroth, Professor of Pharmacy at the School of Pharmacy of the Medical College of Virginia, has been elected National President of **Rho Chi Society** and will be installed for his two-year term at the close of the 1954 Convention to be held in Boston, Mass., next August.

Rho Chi, the national Pharmaceutical Honor Society founded in 1922, has 43 active local chapters at the leading colleges of pharmacy in the United States with a total membership of approximately 6,500 active alumni and honorary members.

At a recent meeting of **Rho Chi,** Texas University College of Pharmacy Chapter, the following were elected to membership: Eugene M. Caskey, practicing pharmacist, Jacksonville, Texas; Gunnar Gjerstad, assistant professor of Pharmacognosy, University of Texas, and the following students: Dale B. Brannom, Jaime N. Delgado, Federico G. Garcia, Armando G. Guerrero, Joe S. Heny, and James H. Pace.

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